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I

EDUCATIONAL ADVANCEMENT AND THE NEW FEDERALISM[1]

I. *The breaking point in educational progress*

That the spirit of unrest and apprehensiveness pervades the whole sphere of educational thought and endeavor today is self-evident alike to layman and professionalist, to the exponents of educational conservatism or of educational progressiveness. While the history of the development of educational ideals and practises reveals clearly a certain persistent iconoclasm of society, the contemporary criticism of the methods and institutions of elementary, secondary, higher, and professional education is more trenchant than in any previous period. Beyond the assumption that educational procedure is but receiving its proportionate share of the determinative attention which modern society is devoting to each of its chief institutions, in the effort to solve pressing social problems, no satisfactory explanation has yet been made for this widespread, unsettled condition of educational affairs. When confronted by the generally acknowledged phenomenal advance in all grades of education during recent years, such an assumption must be accepted as offering an explanation of merely superficial validity; for notwithstanding the wide social recog-

[1] It will be apparent that I have had elementary and secondary education particularly in mind thruout this presentation. With obvious adaptations the conclusions are, I think, applicable to higher education as well.

nition of the rapid improvement both in the technique and extent of education, society continues to direct the searchlights of suspicion with too great frequency and with too much intensity to give any feeling of satisfaction or security to serious students and workers in education. Many are of the opinion that perhaps society has ample evidence for bringing a bill of impeachment against the most fundamental of its institutions.

This matter may, it seems, be examined briefly from two points of view, that of the representatives of the profession of education, and that of society itself. The progressive representatives of education, being keenly conscious of the limitations of accomplishment and of a certain lack of correlation between educational procedure and institutions, and the demands of the larger social life, openly charge society with an attitude of conservatism and apathy, and of captious criticism which impose insuperable obstacles in the way of a rational educational progress. It is as if these representatives said to society: "Give us more freedom of movement and more power of initiation and the results of education will be more in accord with your and your children's needs and demands. Let us re-chart the travel routes upon the map of social progress." To which society responds: "The world is full of pseudo-experts and false prophets and guides in education. The smoothly trodden old routes mapped by the experience of many generations are to be preferred to any new ones." And so the controversy, with charge and countercharge, has waged; the educational reformer on one side, and a conservative or negligent society on the other.

While not without certain evident reservations, it may be submitted that the vast majority of the proposals for educational reform and progress have been in the main altogether unworthy of acceptance and impossible of successful application. It may be further submitted that, in the large, society has in this controversy assumed a defensible position; that society has accepted the dicta of educational progress fully as rapidly as the scientific soundness of those dicta justified acceptance.

The United States Commissioner of Education has recently

called attention[2] in a significant way to the broad principle of social advance that every invention is in reality a distinctly social and not an exclusively individual product, that every epoch-making movement, mechanical, scientific, artistic, or literary, is the cumulative result of a long series of individual efforts and experiences. In other words, invention and discovery are the results of past social progress as well as the causes of new social progress. This conclusion, bulwarked as it is by a vast historical evidence, seems pregnant with suggestion for American education and further offers some explanation of the present critical attitude of society, and also of the tardiness of our educational progress.

Any careful review of the fluctuations of educational opinion in this country during the last twenty years will reveal the individualistic and uncoordinated character of the proposals for reform. Educational science, even when it has pretended to be scientific, has been a one-man science and each of the one-man scientists has investigated and concluded with a striking disregard for every other one-man scientist. Contrary to the canons of scientific research, few investigators in education have verified or applied the conclusions of other investigators. Certainly when the educational investigator's peers refuse to sit as an impartial jury, society may be justified in rendering the verdict, "not proven."

Not only this, but there has been no marking out of the problem in education, in large; no analysis of the larger problem into clear-cut issues so as to permit the utilization of the collected results of accomplished investigation and of the cooperative efforts of individual investigators.

The evidences in the matter seem to warrant these general conclusions: that education has lagged behind in the forward movement of social-scientific institutions; that while, to a large degree, this retardation of educational progress has been due to the instinctive loyalty which humankind has for those institutions and that procedure having the sanction of tradition, the failure to analyze and investigate the problems of education

[2] Elmer Ellsworth Brown :—"Are we an inventive people in the field of education?"—*Science*, Vol. 26 (1907), pp. 161-170.

in a truly scientific way has also been an obstacle to progress which may not be omitted; that effective educational reform in its largest sense must be organized so as to permit of comprehensive and coordinated research and investigation.

Democracy has been accustomed to settling its scientific problems by the "showing of hands," and has therefore deserved the criticism and cynicism for employing such childish technic. In this one respect education has in the past complied with the scientific method of democracy. The hand instead of the head has been the means of deriving our new educational formulas.

II. *The issue—Investigation*

Rational and conscious social reform may be said to pass normally thru four or more less clearly distinguished stages,—the stage of stress and pressure, the stage of investigation, the stage of propaganda, and the stage of application and reorganization, succeeding one another in the order named.

That American education today is in a stage of stress and pressure is not only obvious to the disinterested onlooker, but seriously and uncomfortably patent to the layman interested in the welfare of his own generation, and to the educationalist who takes exception to the canons authoritatively prescribed by the traditions of the past. The great work of education during the early days of our republic was to establish the ideal of education in a democracy. It was a period of the missionary and the preacher in education. Notwithstanding the fact that this ideal may now be said to be firmly established, thus permitting us to turn our attention back to the validity of the old processes and institutions, we continue to employ the hortative instead of the scientific method of instituting needed reforms. We have failed to distinguish the several stages thru which reform must normally pass, and thus our educational doctrine has become decidedly scholastic. We have confused the function of the preacher and the

scientist. The great issue in education today, if we are to move beyond the well recognized stage of stress and criticism, is to distinguish more clearly the function of the educational missionary from that of the educational scientist.

III. *The new federalism*

Notwithstanding any essential differences in the political creeds, of which we as individuals may claim profession, and in spite of the diversity of our everyday partizanship and allegiance toward both men and affairs, it may not, I think, be gainsaid that this United States has, within the period of a little more than a single decade, entered upon a new and distinctive stage of national, social, and governmental development. In fact, this new development has become so well recognized as to receive the strikingly appropriate term: *The new federalism.*

The complexity of modern social life has been, in the case of our American civilization, intensified to an hitherto unknown degree by the very rapidity of its growth and expansion. Therefrom have arisen entirely new social necessities before many of which the individual members of our political federation find themselves either incapable or apathetic of action. The opening of new avenues for centralized federal activity has seemed not only expedient, but apparently inevitable. The late war of benevolent aggression resulting in the enforced assumption of paternal guardianship of an insular territorial family, together with the present-day internal struggle to prevent the enmeshment of our collective life within the net of capitalistic and corporate exploitation, has caused us as a people to alter considerably our whole point of view with regard to the scope of legitimate federal activity.

Well-nigh commonplace is it to remark that the center of gravity in the exercise of many governmental functions is shifting in a striking manner. The negative doctrine of federal aggression in the days of nullification and after has been translated into the positive doctrine of federal responsibility. More and more the states are turning toward the federal government for protection and assistance. The greed of wealth

and the germ of tuberculosis differ only in degree as problems of stupendous social importance for the solution of which any individual state clearly recognizes its impotence. The epoch-making accomplishments of such national agencies as the Department of Agriculture for the common good have served to give added importance to the potential worth of national encouragement and participation in certain fundamental social demands and activities. The recently defined policy for the conservation of natural resources, and the recent institution of the investigation of the conditions of rural life, are but further indices of the extension of federal influences into new directions. Constitutionally extravagant tho it may have appeared to some, the recent congressional proposal to prevent by federal law the exploitation of children by industry and the consequent waste of the nation's vigor and virility contained evidence of an underlying humanitarianism and of a deep-seated sense of social justice which refuse to recognize the artificial limitations of state boundaries.

Disregarding the academic objections arising from the endeavor to preserve traditional legal distinctions or traditional constitutional balances, the large extensions of existing federal activities, and the development of new ones undreamed of a half-century ago, are portended by the signs of the times.

IV. *Education and the new federalism*

Certainly some explanation would need to be forthcoming did not this new federalism,—this new cooperation of state and nation,—develop some consideration of public education as a social activity of great national concern. It is not ill-timed that we should be witness today to an unmistakable and widespread movement for an enlargement of the scope of federal participation in the affairs of education, that most characteristic agency for social reform, and one which the individual states have jealously guarded against encroachment, one towards which the national government has ever maintained a non-committal attitude. The present-day proposals, in and out of Congress, concerning federal participation in the

educational affairs vary in the widest extreme—generous subsidies from the national treasury for the establishment and support of schools of different grades, the establishment of a national department of education of coordinate rank with other executive departments, the institution of a great national university center for research, down to a negative policy of *laissez-faire* and the complete elimination of the federal authority or encouragement from education.

It is untimely to analyze, in this place, the arguments of either the proponents or opponents of a more vigorous and positive federal educational activity. Whether the position of the one party that industrial expansion and cultural development are matters of such large concern as to permit of no bounding by state lines, that there is a pressing need of a clearer definitive of the federal policy so as to bring about closer correlation and a clearer consciousness of our unrealized national ideal, or that of the other party that the progress in education has been as rapid as our people could keep pace with, that a strict construction of the powers of the central government under the Constitution excepts education from the list of federal activities, that any effort for the extension of federal influence would mean federal usurpation of undeniable rights of the several states.

To one whose chief interest is in the advancement of education as a scientific procedure, rather than the erection of another great administrative unit within our federal political machinery, no inconsiderable portion of the arguments for or against the extension of federalism in educational matters have mist the real issue at stake. There seems to be no valid reason for the establishment of any federal machinery for the administration of education. There is a little, tho not weighty, argument that might be advanced in support of federal aid to some grades of education. On the other hand, education is the one subject of vital significance to human welfare, the scientific investigation of which the national government has not generously subsidized and encouraged. Education as an object of *scientific* attention has scarcely come within the purview of the province of the states. To investigate the

educational problem in a scientific manner would seem to afford one of the greatest opportunities yet opened to the new federalism for the rendering of effective service to American progress.

V. *Federalism and the problem of educational investigation*

My contention, then, is that the greatest need for educational reform today is one that can be met most directly and most effectively by the national government; that thru the proper performance of those duties for which there is already legal sanction, it can supply that essential prerequisite for educational progress, scientific and consistent investigation of educational problems.

The statute under which the work of the Bureau of Education is now carried on, contains the provision that it shall " collect statistics and facts showing the condition and progress of education in the several states and territories, and to diffuse such information respecting the organization and management of schools and school systems, and methods of teaching, as shall aid the people of the United States in the establishment and maintenance of efficient school systems and otherwise promote the cause of education thruout the country." This provision in itself is comprehensive enough for the rendering of valuable service. Curiously enough, however, the national government has been loath to recognize the fact that the Bureau of Education could not diffuse information without having that information and the ready means for collecting it. " Statistics and facts " are not endowed with the power of self-aggregation. From the standpoint of the student it must appear that one of the present needs of American education could be met by giving to the Bureau of Education an adequate force of competent field agents whose chief business would be to gather reliable statistics and reliable information relative to education for interpretation and diffusion. One of the wonders of American education is that the Bureau of Education has been able for forty years to carry on a monumental work of supplying valuable educational data and information with no means of collecting that information and data other than the good

will of the educational officers and school-teachers of the country, and the privilege of franking its mail. It would be as reasonable to expect the Bureau of Census or the Department of Agriculture to carry on its work with the greatest efficiency and success by correspondence with voluntary correspondents, as to expect the Bureau of Education to do its best work by means of such a method.

However valuable the improvement of the methods of educational communication could be made thru the Bureau of Education, the work of the Bureau ought not to be confined to this as its chief or sole function. To meet the greatest need of American education the Bureau should be endowed with power and provided with resources for conducting in a scientific manner investigations of some of the larger and more important problems of education as they appear at the present time, especially those problems that are concerned with elementary and secondary education. The peculiar comprehensiveness of these problems almost precludes the possibility of careful investigation by any individual, voluntary association, or state. No agency less effective than the federal government can reasonably be expected to provide men, money, or time for the accomplishment of the needed ends. No agency less dignified and less resourceful is potent enough to bring its influence to bear directly upon problems, not only the most difficult of all scientific problems for solution, but also the most difficult of social and scientific recognition. To an humble student of the matter, the expansion of the Bureau of Education so as to enable it to serve as the central laboratory for American research in education, undertaking that now not undertaken, coordinating and organizing that now being attempted in a haphazard and incidental manner by individuals, institutions, and educational associations, and thereby assuming the responsibility of the leadership now so much needed for the advance of American education, is one way at least of exalting the greatest of the social sciences. This is the opportunity of the new federalism.

EDWARD C. ELLIOTT

UNIVERSITY OF WISCONSIN

II

THE ELECTIVE SYSTEM AND THE SCOTTISH UNIVERSITIES

Whether we laud the elective system as a counsel of perfection, or call down fire from heaven upon it, we evince keen interest. Accordingly, we may be glad to know how its partial introduction has eventuated in a foreign country, one infected, like the United States, with a passion for education, but under other circumstances, and after a very different academic history. However, to understand the position, we must begin by taking a glance at the conditions and the history.

Unlike our institutions for higher education, the Scottish universities do not enjoy autonomy. Their faculties can not meet and, with a wave of the magician's wand, alter the curriculum overnight. Imperial Parliament rules, and the four universities are compelled to walk lock-step more or less, as it were. They perform their services inside a framework which suffices to control every important activity. So, while the spirit of Glasgow may differ from that of Edinburgh, both may diverge from Aberdeen, while all three may offer contrasts to St. Andrews. Nevertheless, the general scheme remains identical in all cases. Thus, thanks to Royal Commissions, and subsequent parliamentary legislation, the universities have past thru the fire of "reform" on two occasions since the middle of the nineteenth century, and we need not trouble ourselves with events anterior to the Act of 1858, nor is it necessary to travel beyond the Faculty of Arts.

The ordinances formulated by the Commission of 1858 laid down a hard-and-fast curriculum for the Arts degree, so devised and hedged around that no prospective graduate could be excused from it under any circumstances whatsoever. The academic authorities were without power to abate or alter the regulations by an iota. For the ordinary undergraduate the

period of attendance ran to four years, and he was required to devote his attention to seven prescribed subjects, neither more nor less. Thus he gave attendance for two years upon the classes of Greek, Latin, and mathematics respectively, and for one year upon each of the classes of logic, moral philosophy, English literature, and natural philosophy (physics). Certificates of attendance upon these classes entitled him to admission to the examinations for the Arts degree, but the regulations were so drawn that he could not pass off any subject without reverting to work done in a previous year. For the purpose of the degree examinations, conducted by an external examiner in association with the professors concerned, the subjects were divided into departments, as follows:—(1) Classics —Greek and Latin; (2) Mental philosophy—logic, moral philosophy, English literature, and rhetoric; (3) Mathematics—mathematics and natural philosophy. It was requisite to pass all the tests, written and oral, enforced in each department, at one time. The practical effect of this rule operated so that a student could not proceed to his classical examination till the end of his second year; he was therefore kept at these subjects continuously for two years as a minimum. In the same way, he could not proceed to the philosophical and scientific examinations till the end of his third or fourth year. Accordingly, here, too, provision for continuous application extending over at least two years prevailed. The notes of the system are perfectly obvious: continuity, concentration, and a sound general education, tending most of all to the production of the logical intellect. And, if a man took the fifth year, usually deemed necessary for the "honors" degree, concentrating still more intensively in one of the three departments, he was in a fair way to become a good scholar, without the narrowness of the secluded specialist. Yet, even so, the criticism, past so forcibly by an eminent Englishman, had only too much basis in fact—"a mouthful of many things, and a belly full of nothing."

For, plainly enough, whatever the merits of this legislation, it stereotyped the course at the very moment when the extraordinary exfoliation of modern knowledge was about to burst forth irresistibly. The multiplication of the sciences, pure and

technical, the luxuriant specialism in economics, history, modern languages, and in philological study, in the widest sense of this term, could force little or no recognition under such an inflexible system. The position proved too patent and perilous to remain free from criticism for long. So, after not a little recrimination between the reformer and the *laudator temporis acti,* Parliament called a second Commission into being precisely one generation after the enactments of the first had become operative. And, today, the Scottish universities are already chafing restively at the chain riveted upon them by the Commission of 1888. The new legislation of twenty years ago, if studied closely by an American, could hardly fail to interest him keenly. For it embodied an admirable specimen of that genius for compromise, " slowly broadening down from precedent to precedent," so characteristic of British governmental procedure. More than likely, the American would be impatient of it, and inclined to smile, perhaps. But he must remember what Sir Arthur W. Rücker, first principal of that most ingenious of educational compromises, the University of London, said to me once: " In the United States you work upon virgin soil ; here we can not dig very deep without coming upon a Roman villa." It needs no profound perspicacity to perceive that the seven subjects of 1858 were " protected," and that " vested interests " could not but grow up around them. Moreover, the enormous increase of the student body between 1870 and 1885 had so enhanced the value of the " protected " chairs that, as has been said, the Scottish universities could call and retain any scholar whom they chose to ask. The assemblage of Kelvin, Jebb, Caird, Nichol, Bradley, Macquorne Rankine, I. Balfour, Bower, Cleland, McKendrick, and others scarcely less distinguished, at Glasgow, for example, was no accident. Salaries ranging from $6,000 to $10,000 (where a dollar is a dollar, and not a beggarly half-crown) with pensions and other perquisites accordant, did not fail to attract. And, if you proceeded to tamper with the system basal to them, you could not but anticipate trouble. Besides, if you proposed to introduce new subjects, implying an extension of the staff, money galore must be forthcoming; and, if not,

then funds must come to be diverted from present destinations. Furthermore, if you aimed to fix salaries, and turn a professor's fees from his private pocket into a general fund, you must anticipate that your appointments would be shorn of their attractiveness to some extent. Of course, the commissioners heard these, and endless other arguments, to weariness. What wonder, then, that they compromised? What wonder that, like the father, his two sons, and the ass, in Æsop, they met more criticism than commendation and that the voice of criticism is in the ascendant at length? As was inevitable, the compromise affected the entire character of the course for the Arts degree, leading to the adoption, not of our omnibus elective system, but of a plan akin to it in measure, tho much more limited in scope. The conservatives fought for the "protected" subjects, the reformers shouted for "open" teaching. As a consequence, each party had its crumb, neither received aught in the shape of a loaf. The division was cicatrized, not healed.

Possibly, then, we are now in a position to grasp the legislation of 1888. Naturally enough, it set out from the existent curriculum, which operated as a norm or base-line. The sacred number—seven—preserved itself quite intact. But the sanctity of the constituent subjects received a rude shock. Moreover, the difficulty of readjustment underwent accentuation, thanks to a significant concession wrung by the outcry of the party of scholarship. Just as in our own universities now, so in the Scottish prior to 1888, the work of the freshman year, in classics and mathematics, partook of high school teaching. The junior classes (as they were called) of Greek, Latin, and mathematics, covered ground which, given an effective secondary system, ought to have been overtaken by prospective students ere the gates of the university had been won. The remedy took the shape of a severe entrance examination—probably the most severe in Britain; and, the elementary classes being thus cut off, the Arts course was reduced from four to three years. University students must come under an attest of fitness to attack work on a real university standard. Thus, as concerned three of the sacred seven, one-half of their cur-

riculum, and more than one-half of their fees, had already gone glimmering. Yet the seven, as a corporate body, so to speak, managed to retain more than the shadow of their traditional prescriptive interest. They had to submit, it is true, to the fellowship of two interlopers, in the shape of modern languages and history. They had to see the old tri-departmental system expand to four, as follows: (1) Greek and Latin; (2) English, modern languages, history; (3) logic and moral philosophy; (4) mathematics and natural philosophy. As a result of this extension, and of the abbreviated course, the elective system put in an appearance. For the new regulations for the Arts degree ran thus:

(1) Candidates shall attend full courses in at least seven subjects, and shall be examined on these subjects. (It may be explained that a "full course" is not less than one hundred meetings of a class in any subject, the meetings to be on separate days).

(2) Of these subjects four must be (*a*) Latin or Greek (not modern Greek); (*b*) English or a modern language (*i.e.*, French, German, Italian, or Spanish) or history; (*c*) logic and metaphysics or moral philosophy; (*d*) mathematics or natural philosophy.

On this scheme, three of the old seven must be elected; and, as nearly all students choose English, the practical effect is that four of the old seven retain their "protection." The three remanent subjects, necessary to complete the required seven for the degree, may be selected by the candidate from the departments specified in Section ix. Section ix runs as follows: The departments of study for graduation in Arts in each university shall include the following subjects:—

1. *Language and literature*

Greek	French	Sanskrit	Celtic
Latin	German	Hebrew	Modern Greek
English	Italian	Arabic or Syriac	

2. *Mental philosophy*

logic and metaphysics	political economy
moral philosophy	education (theory, history, and art of)
	philosophy of law

3. *Science*

mathematics	astronomy	botany
natural philosophy	chemistry	geology
	zoology	

4. *History and law*

history	archæology and art (history of)
Roman law	constitutional law and history
	public law

But here again the tradition of the sacred seven asserts itself. The three subjects, additional to the four which must be selected from nine, can not be chosen without reference to these four. Hence, the whole subjects chosen must be elected in such a way that, in one of three groupings, the old departmental system shall be covered. For the regulation runs: The whole subjects taken shall include either (*a*) *both* Latin and Greek (not modern Greek), or (*b*) *both* logic and moral philosophy, or (*c*) *any two* of the following three subjects: mathematics, natural philosophy, and chemistry. Omitting English, then, which needs no protection in the nature of the case, every Arts graduate must include the territory of one of the three departments as fixt in the regulations of 1858. Thus the advantages of continuity and concentration were maintained, but along predetermined lines. Yet, even in this regard, the introduction of the elective system resulted in one momentous change. A glance at the scheme as outlined above suffices to indicate that the rigid departmental arrangement of 1858 could not be maintained. In a word, the divisions still stand on paper, they do not operate in actual fact. It is not feasible to retain the groups for examination purposes, because, in the altered circumstances, each subject must be treated as a single unit. Thus, just as with ourselves, the close of class instruction opens a direct path to the degree examination. Immediately after he has finished his class, the student may present himself before the degree examiners in the study just pursued. Accordingly, whatever may be said of concentration, the provision for continuity over a period of two years at least has disappeared. To cite a case. A boy has done well at school in Greek, Latin, and

mathematics. In his first year at the university, he elects these subjects. At the close of the year he presents himself to the degree examiners and passes these studies off. In his second year, he elects logic and English. Then, once more, he passes these off. In his third year he chooses history and political economy, and having got rid of them, proceeds to his degree. The effects are these. Within seven months from his first matriculation, he has done with Greek, Latin, and mathematics. After one academic session in logic and English literature, he quits these studies. Then, after six months given to political economy and history, he is finished. That is, he has had two years in which to forget his classics and mathematics; one year in which to lose his freshness in logic and English literature; and he graduates after he has spent a half year upon economics and history. Upon graduation, what does he really know? Does not the Englishman's criticism apply more than ever, notwithstanding the provision for "new" subjects? Has not the course lost its distinctive merits, and with no appreciable compensation? Now, notwithstanding these pertinent questions, notice that the plan, even as it stands, is superior to our own, and in two respects. On the one hand, it does provide for a certain amount of concentration; cognate studies must be pursued, willy-nilly. On the other hand, a mere class examination does not suffice for the degree; the candidate must qualify by his class examinations for that more extensive, severer, and more objective test enforced by the degree examination before a board not constituted exclusively of the teachers involved. Yet, even at this, the Scots find the system far from satisfactory. It does not consort with their ideas of thoroness. Professor Burnet, the eminent Greek scholar of St. Andrews, says: "So far as I know, not a single teacher in any of our four Arts faculties can be found who is satisfied with the degree as it stands. Some may be more venturesome, and some may be more timorous than others in their views of what should be done, but the existing regulations have apparently no one to say a word for them among those who know their working most intimately." The degree "may imply honest enough labor and be difficult enough to obtain, but

it may be a featureless amalgam." Or, as I have said otherwise above, the ordinances permit, and even encourage, "a fragmentary and discontinuous course, in which subject after subject may be finally dismist at the close of a session" of one hundred meetings. Any one who so pleases may draw his private inferences about our own plan by comparing it with this very limited system of options, and giving heed to the unanimous chorus of condemnation. What, then, do the Scots propose to do?

By general consent, two points, pivotal to further reform, have formulated themselves in the minds of those who have a right to judge. In the first place, it is imperative that the ordinary undergraduate should be compelled to reach a plane of more definite, expert attainment in some particular branch of study. That is, the necessity for intensification is conceded on all hands. In the second place, this intensification implies closer personal contact with the teacher thru a tutorial system, and the extension of the academic session, so that the rush of five-day-per-week classes, with its inevitable lack of time for digestion, may be abolished. While the regulations designed to effect these desirable reforms are not fully matured as yet, the direction to be taken by them is perfectly clear. To begin with, the sacred seven are to be anathema at long and last. Five subjects will be exacted for the ordinary degree in Arts. Two of these must be pursued thru two academic years, and the degree examination upon them is to require a higher standard than that set for the three supplementary subjects. Intensive and continuous application is thus to be restored to its old place, but on a much higher level of attainment. Again, with respect to time, the traditional session, covering the five winter months from October on, with the more or less perfunctory summer session as a support, will go by the board. The academic year will be divided into three terms, and thus the number of meetings necessary over the shorter period will be distributed, affording opportunity for lengthened application in a single field, and for real tutorial instruction. This scheme presents a departure from Scots usage so radical that, in my judgment, if carried out efficiently, it will mean a complete in-

ternal reorganization of the Arts faculties. One point in especial strikes me as most obvious and difficult. Granted that a student, equipped with the already considerable knowledge of Latin, say, that the preliminary examination demands, spends his first year in further advance in this subject, what kind of instruction is the university going to provide for him in his second year, when true intensive study becomes, not merely possible, but inevitable? He is no longer on the level of the ordinary, or pass, undergraduate of my time. Is he, then, up to the standard of the "honors" degree? If, as I judge, he is not, the implication is that a completely new range of courses will have to be provided. How this is practicable with the present staff and on the present income, I fail to see. I mention this just to show that the alteration is by no means so simple as might seem from the description I have just given. Personally, I believe it to be desirable in the highest measure; but it seems to me that, just as it raises the standard for the pass degree, it must elevate still further that for the "honors" degree, thus leaving an intermediate field to be overtaken. Nor is the practical difficulty lessened by the traces of the old "protected" subjects that still remain. As we saw above, the subjects of study are grouped into four departments. Now, the candidate is required to elect his five subjects so that his choice embraces studies from at least three of these four departments. In other words, the teachers who have students pursuing their subjects on the "intensive" plan will be burdened, and inevitably, with many others, possibly a majority, who are taking the same subjects as supplementary to their *Hauptfäche,* and therefore on a lower level. It is of interest to note, as of possible bearing on our own conditions, that "every student at the beginning of his first term must submit the subjects which he proposes for his curriculum, and at least a provisional order of study for the approval of the Official Advisers, who act under the control of the faculty. Any subsequent alteration of the curriculum must be submitted to the official advisers and the dean." I have refrained purposely from dealing with the course for an "honor" degree, because we have nothing like it. But it may be noted in passing that

some of the "honor" regulations are eminently worth consideration on our elective system. For instance, candidates in classics must take at least one subject not in the humanistic group; candidates in science must take at least one subject not in the scientific group; candidates in English literature must elect British history; candidates in history must take philosophy or economics; candidates in economics must elect British history, and so on. While, for pass students, education follows psychology, Roman law follows Latin, geography follows geology, and the like. Those who are familiar with academic education in several countries, such as, say, England, Germany, and the United States, will infer forthwith that we have here a plan *sui generis*. It has developed under peculiar conditions, educational, social, financial, and governmental. As yet in the gristle, no one knows how it will eventuate finally. But, even so, it is not beside the mark to ask, What bearing, if any, has it upon our own arrangements?

Any system, educational or other, draws its life-blood, and its significance, from the people who created it for their service. You may import a foreign scheme ready made, but, even so, it can not remain unaffected by the new environment. At the outset, then, one may as well confess that the Scottish universities diverge widely from our own in several particulars.

(1) The youngest university has reached the respectable age of 326 years, the oldest will celebrate its 500th birthday in 1911. The institutions have enjoyed opportunities to root themselves profoundly in the past of their folk. Thus, for many a long year the Arts faculties have occupied a peculiar relation to society at large. Far more than ours, their degrees constitute outlets to a foothold on the first rung of the ladder of life, and have been favored by a consideration that we wot not of. Small wonder, then, that the pressure for an omnibus elective system exerted, to all appearances, by our fluctuating changes, has not been experienced keenly. So much so that, in 1891, one of the oldest and most learned professors of theology was able to affirm: "While there has been undoubtedly a general wish that the range of the degree should be extended to various branches of 'a good general education,' not

at present connoted by it, there has been no public demand for a revolution in its character. A few theorists, who are ready to construct the university system anew on ideal principles, as to the practical outcome of which hardly two of them are agreed, and who can find no other or better aim for the Scottish universities than that of imitating (under whatever diversity of circumstances and conditions) the arrangements of Oxford, Berlin, or Harvard, may have formulated schemes, and, after an academic discussion, have procured the assent to them of a fractional representation of the University Councils . . . but there has not been any desire exprest by the professions which are mainly interested, or by the public, for the introduction of subjects not usually conceived to be included under 'a good general education,' or for the subsumption of an endless variety of special attainments under the designation of M.A." In a word, the Scottish institutions are more stable, because the lines of social activity are less fluid, and the needs to be served by the universities are better defined. The situation reminds one of the sergeant in charge of the Highland squad drawn up for church parade at Edinburgh castle. His commands were snapped out thus: "Presbyterians, right face, quick march! Fancy releegions, bide whaur ye are!"

(2) Professor Dickson's reference to the professions intimates a good deal. The Arts degree forms an indispensable preliminary to the degrees of the "superior faculties" of theology and law. Candidates for the B.D., and the LL.B., must be Masters of Arts; while, more recently, the M.A. has come to take its place as a prerequisite to appointment on the staffs of the secondary schools, whose system has extended greatly in the last twenty years. Hence a source of good, set ballast. Subjects must be included which, on the general consensus, furnish a safe, stable preliminary to subsequent professional study; and, by consequence, professional studies, in the technical sense, are excluded. That is to say, circumstances furnish, almost automatically, a standard of educational value whereby one group of studies is strest, while others are minimized, if not vetoed. For instance, alter your options as you please, it is little likely that the Church will liberate its

students from requirements in English, Latin, Greek, logic and metaphysics, and moral philosophy. If she did, Scotland would no longer supply the empire with its leading theologians. In the same way, the subjects for which the secondary schools call are limited in number, and form an obvious group. And, when you have withdrawn prospective preachers and teachers, you have already cut a large swath in the ranks of Arts students. So, too, the government services formulate certain demands and, like the legal profession, those in control know their own mind well enough to be quite definite. Briefly, the Scottish Arts degree forms a professional propædeutic far more than ours. As such, it enforces definite attainment along definite lines and, outwith them, the constitution of society being what it is, the number of possible candidates is far fewer than in the United States. It has not eventuated there that, to use the words of Professor Harry Thurston Peck, "the so-called 'liberal' policy in university government has not raised mediocrity to the plane of scholarship, but has degraded scholarship to the plane of mediocrity." [1] The Arts degree is meant to qualify for a serious rôle; how serious the precedent entrance examination emphasizes emphatically.

(3) This forces upon our notice the fact that their students are not only prepared much more *evenly,* but much more thoroly. Every one familiar with British academic institutions is aware that the matriculation examination of the old London University was the most trying test for many years. In 1906 I happened to be in consultation with several educational experts at Westminster, when the question arose, Is the Scottish preliminary or the London matriculation the more exacting examination? A very prominent official replied immediately, "I can answer that question, I have just been examining in both." His answer was to the effect that the Scots examination was the more difficult and, in addition, that the northern candidates were better stuff alike in preparation and in natural ability. It has been said, with what authority I know not, that 70 per cent. of our A.B.'s could not meet this test; in any case, it was true a few years ago that 49 per cent.

[1] *The personal equation,* p. 349.

of the Scots examinees failed. This would seem to indicate two things. First, readiness for university work on the part of those who do succeed; second, a certain educational maturity which would argue well for wise choice among possible options. But, however this may be, a strenuous preparation is evidenced, issuing no doubt from the strongly competitive conditions of life, which do not as yet afflict—or discipline —us.

The marked differences in environment, then, may be summed thus: On the one hand, the social situation guards the unity of the Arts course in a manner quite unfamiliar in our midst. On the other hand, the standards are more rigid, because the pressure of life is far severer. The plain effect of these contrasts upon an elective system requires neither comment nor elucidation.

On the contrary, certain general similarities between Scottish and American universities are very startling, so much so that the most evident runs to the length of paradox. Aberdeen and the rest outdo even our State universities in their democratic character. It is not merely that the universities of both lands stand forth as distinctively popular institutions. The Scottish academic atmosphere gives democratic quality freer play. In the United States, the social side of college life tends to loom up larger and larger. As a result, contrasts bred of accidental circumstances—money, for example—can not but affect the reckoning, this is inevitable. But, in Scotland, a man's standing depends almost exclusively upon his brains. Everything worth while goes by competition, a competition that knows no favor to the well-born, no fear of the lowly. Indeed, this characteristic rules so potently that at least one eminent teacher has protested against it. Professor Nichol thought that the constant stress rendered the Arts course too disturbing. Nevertheless, it proceeds from the genius of the Scots folk. Even more than among ourselves, the student attends the university bent upon making it a step to still larger things, and he endeavors, as a rule, to obtain all that he can. Besides, just as in our state universities, the cost is slight and, thanks to the Carnegie fee-fund, may be almost *nil*. The

career counts; hence all college honors base upon distinction in actual work. Rarely does a student receive election to the important posts in the gift of his fellows unless he has proved his ability. Running my eye down the list of past presidents of the Students' Representative Council at Glasgow, for instance, I find that most of the officials chosen to this highest undergraduate post have been first-class honor men, and that a large proportion of them, tho still young men, have already risen to distinction in the church, law, medicine, or education. Further most of them were poor, and gained the front solely by their own ability and application. Thus, the elective system, such as it is, meets a student body inoculated with quite distinctive tendencies; a body greedy for acquisition, and this for the purpose of personal distinction and efficiency. That is to say, completion of individuality, rather than direct reference to use in future life, dominates the atmosphere, and determines the norms. The itch for "campus celebrity" is nigh unknown, the necessity for personal enlargement, employing the course as a direct means, prevails almost everywhere. Elections really matter, they can not be undertaken with a view to possible subordination of self in this or that practical activity. Here the democracy sees the opportunity to differentiate itself by tapping the sources of its own latent ability. A spirit cursed with the defects of its excellences, as it is, there can be no sort of doubt, at the same time that it accounts for the success of the Scot so utterly out of proportion to his numbers. He has "hoed a hard row," knowing why. For, if he permit himself the luxury of options, the reference is, not to possible eventualities in office or factory, but to the necessity for self-improvement here and now.

(4) As with us, too, especially in the state universities, the great majority of students are dependent upon their own efforts. Serious purpose possesses them—too serious sometimes, for they often break under the strain. But economic conditions do not exist to deflect it from the path of more or less ideal ends, and to link it with commerce or business. Thus the drift towards abuse of options, in the vague notion that they may be useful, runs far less powerfully than in a new country.

No doubt, tendencies have appeared to regard the Arts degree as an end in itself, just as many Americans seem to judge the Ph.D. But, even at this, the dangers inherent in electives can not be said to figure so prominently. It is true, as in our own case, to some extent, that the frequent examinations absorb too much energy, and that, in particular, they interfere with the voluntary exercise of intellectual energy by the students. Yet this can be counteracted by the staff, and, so far as I can make out, our Scottish colleagues are far more insistent than we upon the wish that students should pursue knowledge for its own sake, and thus develop their powers fully and freely, without reference to such ulterior motives as even university exercises and examinations. In other words, the vice of departmentalism strikes no deep root with them. The bearing of this fact upon an elective system needs no emphasis.

In conclusion, we may notice that the Scottish universities, extreme tho their democracy be, tend to differentiate and control studies in such a way that the presence of an elective system does not produce disintegration of the characteristic Arts course. For, (1) many subjects are held to be, not simply of interest to specialists primarily, but also of so composite and comprehensive a nature that they can not prove advantageous for the average undergraduate. They demand a preliminary training in languages, history, philosophy, or what not, and apart from this, their presentation to an immature student can not but degenerate into a sad farce. Without culture-root they hold no culture-value. Thus, several of our airy excursions find themselves eliminated. Some acquaintance with mathematics and astronomy would appear a wise preliminary to adventures in the moonshine. The intensification, inseparable from subdivision, requires, as a necessary prelude, sound acquirement in the elements and principles basal to the particular field as a whole. *Cui bono*—to flourish Greek archæological slides before pleasant young ladies and gentlemen who know scarce enough of the Greek alphabet to pronounce the names of their own societies, and can not tell a plinth from a frieze on sight? How teach the "English" Bible to students if your "professor" forsake his "English" for a field where he

is guiltless of the most beggarly elements of information? The supposition that such unholy performances are "educative," on a level with application in a study where the student enters with some real preparation, were utter fatuity. And your Scot's bump of caution has been too much developed by hard knocks to permit of this luxury. His fare may be oatmeal, but he asks the real thing, and fancy fritters avail nothing to stay his pangs.

(2) Purely professional courses are eschewed as far as possible. No real gain accrues if one provide for the immediate future of the body at the sacrifice of something which would contribute to permanent elevation of the spirit. If you must introduce professional options, counting in another faculty, you ought to follow a rational principle. The aim of the Arts curriculum being plain, this principle requires no search on the shadowy outskirts of educational practise. You face the question, What pure science—mathematico-physical, biological, or human—underlies your proposed professional study? Determine this, and your plea will obtain careful consideration, not otherwise. The Arts faculty has not received a commission to support that "ill-considered system which forces a half-education upon all men, whether they will or no, thus breeding for the state some of its most difficult sociological problems."[2] Roman law, for example, presupposes a competent grasp of Latin. This being understood, the subject itself may enter the list, and gain attention in its historical, philosophical, and political aspects. Doubtless, these will not help the embryo attorney to draw a brief, or argue a cause, but they will teach him that law claims a recognized place among the other human sciences, that enactments embody the ideas and ideals of a civilization at a given stage of its development; in short, that law itself ranks as one incarnation of *Kultur*. Thus the object of the Arts course becomes quite evident, like the attitude of the Arts student. Let the study be what it may, the end always bears relation to acquirement in and for itself, never to its eventual use as an instrument of nimble muck-raking.

[2] *The personal equation*, p. 352.

(3) The operation of the elective system is also influenced profoundly by the academic atmosphere. The necessity for definite attainment in knowledge, if one is to become an enfranchised member of the university, so to speak, compels concentration and continuity. The premature confusion of general with highly specialized pursuits lies under a ban. No matter how desirable, "soft options" avail little or nothing in the final account. For at best, they lead only to a "pass"; and, even if a "pass" imply more than our "credit," it carries no scholastic weight in the academic eye. Similarly, the numerous awards of prizes, scholarships, and fellowships, always upon a strict competitive basis, tend to keep the student's perspective lucid. Their attainment may, often does, determine the channel whence he proceeds to a career more worth while than the average. And he must achieve them by his own steady purpose, ability, and sustained application. He bulks before the academic community, not as a member of the delectable company of Gamma Sigma, or Ghost Seers, not as a pert youth who speaks his jejune piece on a subject about which, in the nature of the case, he has nothing to say, but as a scholar or fellow in this or that recognized group of orderly study. The whole trend of his environment suggests that he systematize his elections, that he dare not flounder about rudderless. Even if the official adviser, his father confessor, fail from his elbow, the familiar spirit of the place would speak soft admonition. It would say, "You can not expect to take aught out unless you bestow something." In a sentence, the inchoate features of our elective system are conspicuous by their absence; and, most emphatically, subjects, not *hours,* count.

(4) Finally, be the theory of the elective system what it may, the practise puts a premium upon a certain modicum of educational common sense. A clear tendency is visible to ballast the curriculum in specific ways. As every one recognizes, some subjects possess a definite body of settled, codified information, and, as a matter of plain fact, they are taught in identical fashion the world over. Others, again, fall in the category of a study that shall be nameless, about which one of my colleagues, who professes it, remarked to me, "No two

men in our universities are teaching the same thing." Placed in a strait between these contrasted types, the Scot hesitates not a moment on the problem of relative educational value. The former has won its fit place in the Arts course, the latter may belong there on equal terms some day; meanwhile, it can never aspire to be more than a sequel to thoro training by means of its disciplinary neighbor. Studies still on the make can not but have a point of departure; only when you have mastered this is it safe to proceed further. On such a scheme you obtain your option, no doubt; but you are compelled to begin by proving your fitness for the implied freedom, because, educationally, dangers beset it. As a natural upshot, the Scots bill of fare offers less variety than ours, and it always demands that what is selected shall be digested with some approach to thoroness. I leave to others the delectable task of deciding which prescription affords the better remedy for youthful inexperience. It is certain that we can not adopt a foreign plan, just as it is certain that our omnibus degree could never be transplanted to Scotland. But, as the Scots have profited by investigation of our methods, we might learn something by a thoro inspection of theirs, the more that we both happen to be in the same boat—of transition.

R. M. Wenley

University of Michigan

Postscript:—With reference to the large proportion of undergraduates (as above noted) whose intention is to enter the profession of education or the church, the following figures may be of interest; they are taken from the latest Report of the Official Advisers at Edinburgh University, which came into my hands after this article was written.

(1) Of 281 freshmen, 174 look to teaching or the church. Of the remainder 70 are undecided.

(2) Of 678 upper classmen, 472 look to teaching or the church. Of the remainder 130 are undecided.

III

THE NON-URBAN HIGH SCHOOL IN MASSACHUSETTS AND NEW YORK

I

THE STATE AND SECONDARY EDUCATION

Most discussions of secondary education seem to have reference to high schools in cities and very large towns. In view of the fact that small high schools are a very important factor in American secondary education, both in regard to number and enrollment, this study will treat of public high schools in non-urban towns and rural districts, or those with a population of less than 8,000. After a brief exposition of the organization of education in Massachusetts and New York, we shall discuss at some length state aid and control of secondary education. The chief sources are the latest school laws of the two states, and the annual reports of the Massachusetts Board of Education and the New York State Education Department. We have also drawn to a considerable extent on two articles by Dr. E. J. Goodwin, in the EDUCATIONAL REVIEW, XXXI and XXXV, and on the proof sheets of E. A. Snyder's dissertation, *State administration of rural high schools.*

In spite of the well-known disadvantages of small high schools, they have many advantages, so that in results accomplished, the high schools outside of cities seem to compare very favorably with those in cities. Mr. J. W. Macdonald seems to think that pupils in small high schools are superior to those in large ones. A statistical comparison—in so far as the results of written examinations justify any comparison—is available for New York. In the state academic examinations of 1905-1906, high schools in villages equaled those in city schools, tho the latter were ahead in the percentage of honor papers.

The secondary systems of Massachusetts and New York are

of very high rank, tho of a widely different nature. The New York educational system is the most highly centralized one in the United States, while that of Massachusetts is at nearly the opposite extreme. The New York high schools are, therefore, on a somewhat uniform plane of excellence. On the other hand, the Massachusetts system of extreme respect for the individualism of communities produces some of the best schools in the world, and also a few very poor ones.

The local unit of educational administration differs in the two states. In Massachusetts the county has nothing to do with education except to maintain and manage truant schools. The local unit is the town; but "two adjacent towns, each having less than five hundred families or householders, may vote to form one high school district for establishing a high school." The law compels all towns to obtain professional supervision; every town must employ a superintendent of schools or be in a superintendency union or in a superintendency district. New York is for purposes of education divided into school districts, in which the business is chiefly managed by the district meetings, with some power in the hands of elected trustees. When a school district has become too large conveniently to meet and transact business, a union free school district is formed from the common school district from consolidation with one or more common school districts. A further increase of population leads to the formation of chartered cities, with a special kind of school organization. A union free school district may establish a secondary school, called an academic department, or take over and manage a private academy, thereupon likewise termed an academic department. Common school districts seem to have no legal sanction for forming academic departments, but sometimes do so. A much larger division than the common or the union free school district is the school commissioner district—not including incorporated cities,—which usually has about the same boundary lines as a legislative assembly district. The executive officer is the school commissioner, who is popularly elected, and is not required to satisfy any educational test.

Since the state has the ultimate control over education, its

legislation largely determines what the schools are to be. In Massachusetts the chief influence of the state over education is in the conditions of granting state aid and in certain mandatory legislation, such as that requiring towns of five hundred families to maintain a high school. Dr. E. A. Snyder thinks that the tremendous development of rural secondary education is due very largely to legislation that equalizes the economic burdens and that reacts so as to greatly increase favorable public sentiment. The educational powers and duties vested by law in the State of Massachusetts are lodged in the hands of the State Board of Education, consisting of the governor, lieutenant-governor, and eight other persons appointed by the governor, one each year, for a term of eight years. The executive officers of the board are the secretary and four agents.[1] The control over local authorities is very small compared with the powers of many state superintendents and boards; the chief function of the Massachusetts Board of Education is "to advise, enlighten, and arouse, but not to compel."[2]

New York not only controls education thru mandatory and permissive legislation and thru conditions of state aid, but it

[1] Since this article was written, the legislature of Massachusetts has past a law making a change in the state educational authorities: our main conclusions are not altered, however. In accordance with an act of 1906 a commission on industrial education was appointed to foster and assist the establishment of agricultural and other industrial schools, which were aided by the state. By the act of 1909 this commission was consolidated with the state board of education, henceforth to be composed of nine uncompensated members, three of whom the governor, with the advice and consent of the council, is to appoint each year for a term of three years. The new board of education has the powers and duties that belonged to the former board of education and to the commission on industrial education before July, 1909. The present board of education appoints a commissioner of education, whose term is five years, but who is removable at any time by a two-thirds vote of the board. The intention seems to be to give the commissioner considerably more power than the secretary of the former board of education had. The board also appoints two deputy commissioners, and such other assistants or agents as may be necessary. This law is a manifestation of the centralizing tendency; and the wisdom of bringing industrial education under the direction of the state board of education can hardly be questioned.

[2] Whitten, *Public administration in Massachusetts,* p. 24.

also exercises important executive and judicial functions. The Board of Regents is composed of eleven members, one to be elected each year by the legislature for a term of eleven years. It exercises the authority of the University of the State of New York, which has great power over higher education. It also has certain legislative functions with reference to all the state educational activities, including elementary and secondary as well as higher education. The statutes and policies of the Board of Regents are executed by the Commissioner of Education, who is the general advisory and supervisory officer, as well as the final judicial authority in educational disputes. He advises the legislature and helps or hinders school bills. He directs the school commissioners, has charge of the twelve state normal schools, and manages the finances of the school system. At the close of the present term in 1910 the Commissioner will be elected by the Board of Regents for an indefinite term. Under the Commissioner are three assistant commissioners and many other officials, so that the State Education Department is very completely organized.

Within the last few years there has been a decided increase of state control in Massachusetts and New York. Just what is the present tendency is a little hard to determine. Altho Dr. Draper, the Commissioner of Education, has stated that he does not believe in too much state inspection or direction, the New York State Education Department does not seem inclined to give up any of its powers. In the Massachusetts reports for 1902-1903 and 1903-1904, Mr. Macdonald advocates a state high school; and in a later report we find the statement that the time is evidently ripe for a definite leadership by the central authority in Massachusetts, to shape and influence the trend and policy of the local high schools more directly.

Altho Massachusetts has always been a leader in setting a high educational standard before the country, as a state it has done very little in support of free public education. Less than 5 per cent. of its school revenues are derived from state taxation, and less than 2 per cent. from the permanent school funds, known as the Massachusetts School Fund, into which the state pays annually $100,000 until the principal shall be

$5,000,000. Other money appropriated by the state for the aid of education is taken from the treasury of the commonwealth. State aid to Massachusetts high schools may be classified under four heads: 1, direct subsidy; 2, reimbursement of tuition; 3, distribution of the income of the Massachusetts School Fund; 4, aid to superintendency unions. 1 and 2 benefit secondary education directly, while 3 and 4 apply to elementary as well as to secondary education.

1. *Direct subsidy.* A town of less than five hundred families that maintains a four-year high school receives annually $500 for the support of the school, provided that it has at least two teachers and keeps open for forty weeks, exclusive of vacations. But no town whose valuation per pupil in average membership in the public schools exceeds the corresponding average for the commonwealth, receives this subsidy; and the high school must have been approved by the State Board of Education.

2. *Payment of tuition.* Towns with five hundred families must maintain a high school. Those with less than five hundred families or householders, in which a public high school or its equivalent is not maintained, must pay the tuition of any resident child whose attendance at the high school of another town or city is approved by the school committee of his own town. Massachusetts was the first state in the Union, if not in the world, to compel all towns to provide free high school instruction. As this compulsion bore hard on many small and weak villages, there arose the policy of state reimbursement of high school tuition payments. Thus towns that have less than five hundred families and do not maintain a high school, receive one-half of the amount spent for tuition if their valuation is over $750,000, and the whole amount if their valuation is less than that sum.

3. *Distribution of the income of the Massachusetts School Fund.* Towns with a valuation of not over $500,000 receive $500 annually, and $75 besides if their rate of taxation is $18 or more on the thousand; towns with a valuation of $500,000 to $1,000,000 receive $300; towns with a valuation of $1,000,000 to $2,000,000 receive $150; and those with a valua-

tion of $2,000,000 to $2,500,000 receive $75. The rest of the income is distributed to towns in all of these four classes, in the proportion that their school tax forms of their whole tax. Certain conditions must be fulfilled, however; towns must comply, to the satisfaction of the State Board of Education, with all the school laws; and if having five hundred families, must maintain adequately equipped four-year high schools for *thirty-six* weeks, exclusive of vacations.[3]

4. *Aid to superintendency unions.* To each superintendency union—lack of space forbids a careful description of this interesting and suggestive system—Massachusetts pays annually the sum of $1,250, of which $750 goes toward the superintendent's salary and $500 toward the teachers' salaries in the towns forming the union.

The effect of the law of 1902, providing for state reimbursement of tuition and for state aid to certain approved high schools, has been to bring a free high school education within the reach of every boy and girl in Massachusetts. Of course, the cost of transportation, tho many towns provide free conveyance of pupils, or of board away from home, is too great for some families that might otherwise send their children to high school. Altho other causes have certainly been operating, the law has no doubt increased high school attendance. In the majority of cases the efficiency of high schools has greatly increased under the law of 1902 and the stimulating influence of the superintendents. Because a large direct subsidy is paid and tuition payments are reimbursed, the state educational authorities have checked the tendency to increase the number at the expense of the quality of high schools, by setting high standards of efficiency. Tuition rates were generally not unduly increased as a result of the law; for the average cost per pupil was $54.16 for 1906-1907, while the average tuition rate was only $42.07.[4]

Altho the law has on the whole been very beneficial, it

[3] Note the conflict in the law requiring towns of five hundred families to keep a high school for *forty* weeks; in smaller towns it must keep for *forty* weeks to receive the $500. *Cf.* 1 above.

[4] Massachusetts Report, 1906-7, xciii.

nevertheless has certain defects. Dr. Snyder questions the wisdom of compelling a high school to give a four-year course in order to receive help from the state; most high schools of the country have past thru the one, two, and three-year stages of development. New York aids academic departments that have a course of one year or more. Mr. Macdonald, the Massachusetts state agent in charge of secondary schools, has shown that the state assists small towns that do not maintain high schools far more than those that do.

Probably it is desirable to encourage more strongly the formation of high schools in small towns. If the local school can be made reasonably efficient, a strong argument for its maintenance is found in the fact that only about three-fifths as many students will go to an outside school as would attend a local one; there seem to be several good reasons why this is true in Massachusetts. Altho the strong outside secondary school can give better instruction than a small local institution, towns that have an option about maintaining a high school prefer to do so, except where the expense per pupil would be unreasonably great, or where a neighboring high school is easily accessible. The central educational authorities seem to make fairly good provision for preventing an inferior high school from receiving state aid. If, then, on the principle of the greatest good to the greatest number, it is granted that Massachusetts should still further encourage small towns to establish high schools, it might be well to increase the present grant of $500; for it is clear that in the average town of less than five hundred families it costs more to maintain a high school than to send secondary pupils elsewhere. Doubtless it is impossible fully to equalize the burdens of secondary education; but perhaps this ideal could be approached more nearly by making allowance, in granting state aid, for the size of permanent school funds as well as for the valuation of towns.

New York has several permanent funds, the income from which is made part of the general state appropriation for the support of schools. This money is distributed only to schools taking the state academic examinations; but these are mandatory only in the last two years of the course. Dr. Draper

has classified state aid to secondary education under four heads:

1. The quota of $100 to each non-sectarian school—the smallest item of state aid.

2. The state payment of tuition—second in amount.

3. The payment for library books, etc.—third in size.

4. The payment on the basis of attendance of academic students—the largest item.

1. Each city, union district, and non-sectarian academy that maintains an academic department according to the laws, ordinances, and regulations of the Regents receives $100 for each academic department.

2. The free tuition law is the most effective agency for improving the small high schools, which receive the bulk of that apportionment. The state pays the tuition of non-resident students from a district without a four-year curriculum, provided that these pupils have completed the course maintained by the district in which they live. Village high schools receiving such students must make no charge for tuition, other than the $20 paid by the state. On the other hand, city high schools may make their usual tuition charge; the difference between this and the $20 paid by the state is defrayed by the districts in which students reside. There are four grades of academic departments in New York: the junior, middle, senior, and high school grades, having one, two, three, and four years respectively. Each school may, however, give instruction one year beyond its grade, but the state does not pay the tuition of non-resident students who are beyond the grade of the school. Until very recently schools below the high school and senior grades were not permitted to receive state tuition pupils; this limitation led many junior and middle schools to extend their curriculum and equipment so as to meet the requirements of the two highest grades. The demand for a change in the provision finally became so strong that it was acceded to; and now academic departments of all grades may admit non-residents at state expense. Under the law the Commissioner lays down the conditions under which public secondary schools may receive these students; but "no school is compelled to

admit students under the provisions of this act" or is under any obligation to furnish free textbooks for them. He has accordingly prescribed that the school must be a union school, housed in a suitable building with laboratory facilities for individual instruction; it must maintain a standard of discipline and instruction satisfactory to the State Education Department; and it must include in its curriculum certain subjects prescribed for schools of various grades. The prerequisites that state tuition students must have, including the credentials that may be presented by them for entrance to an academic department, are oulined in detail.[5] In these ways the tuition law gives the state a powerful influence over secondary education.

3. Besides granting $100 annually to each non-sectarian secondary school and paying for the tuition of non-resident students, the state appropriates each year a sum for approved library books, etc. Each non-sectarian private academy receives an amount equal to that raised locally for books, pictures, and apparatus, but not over $250. City high schools are provided for in a similar way. A union free school district that has an academic department is given not over $268, and $2 additional for each teacher in the district.[6]

4. The fourth form of state aid is employed in the distribution of the balance of the state appropriation, which is apportioned on the basis of aggregate days' attendance of academic students. This amounts to over $3 per pupil.

About thirty small high schools are aided indirectly in another way. The state pays $800 toward the salary of a superintendent in a union free school district that has a population of at least 5,000.

It has been shown that state aid results in a powerful control over local high schools by the State Education Department, and more particularly by the Commissioner of Education. For small high schools as compared with large ones the $100 quota and the library grant are the most helpful, while the tuition law is the most important state agency for

[5] New York State Education Department Circular, June 12, 1908.

[6] Chapter 683, Session Laws of 1906, as cited in Snyder, 74.

their improvement. It gives instruction to unusually able and industrious students; it stimulates many small schools to improve their buildings and their laboratory facilities, to extend their curriculum, and to employ more teachers. Thus they give better educational advantages not only to non-residents, but to residents as well.[7]

The tuition law is of especial benefit to rural young people; for more than 10 per cent. of all the public secondary students in New York have their tuition paid and are therefore living in rural districts that do not maintain an academic department of four years. In 1906-1907, 77 per cent. of the money paid by the state for free tuition was to high schools in villages of less than 5,000. It might therefore seem that small towns maintaining academic departments are most benefited by this law. Such, however, is not the case; for tuition payments are anything but a financial benefit to most towns receiving them. The average annual cost of high school instruction in the State of New York was $80.87 in 1907. The actual per capita cost of high school instruction in the State of New York is, moreover, $3-$5 greater in villages than in cities, which may charge the difference between their usual tuition fee and the $20 paid by the state. Dr. Goodwin has pointed out that village schools with small classes are nevertheless anxious to meet the conditions prescribed for receiving non-resident students; for the accession of pupils enlarges and improves the schools without increasing the cost of instruction. Doubtless the last statement is not intended to be sweeping; for if a high school had reached the maximum enrollment that could be handled by the present teaching force, the addition of even a few pupils would necessitate the employment of an additional teacher. Certainly the admission of any considerable number of non-resident students would add materially to the running expenses. In most cases the higher requirements that would have to be met would increase the operating cost.

Altho the free tuition law has on the whole benefited secondary education thruout New York, it might be amended so that the burden of educational support would fall less heavily

[7] E. J. Goodwin, EDUCATIONAL REVIEW, XXXV, 497.

upon the sparsely settled districts, which are least able to bear it. The villages would no doubt like to charge tuition equal to the whole cost of instruction. But since the larger part of the tuition would be paid by the districts in which students live, such an amendment would partially defeat the purpose of the law—to give free high school opportunities to rural boys and girls. Indeed, the result would probably be the formation of many small and inferior schools. The present law seems *a priori* to encourage sending pupils away to school rather than the establishment of local high schools; but the fact that the largest single portion is to villages of less than 2,000—rather than to those of 2,000-5,000, 5,000 and over, or cities—indicates that high schools are pretty well distributed even in thinly settled localities. Dr. Goodwin recently exprest the belief that the state should pay about $40 instead of $20. Possibly the state should even assume the whole cost of instruction of students from districts that are below a certain size, and do not maintain an academic department. This might be justified on the ground that the cities and larger towns, which would bear the brunt of the tuition payment, would ultimately derive its benefits thru the urban movement of population. A greater quota than the present one of $100 would help to offset the injustice of the tuition law.

Both New York and Massachusetts are doing considerable in aid of secondary education. For the year 1906-1907 the State of New York paid $552,189.77 for all secondary education, public and private, out of a total cost for these schools of $8,549,614.03, or 6.4 per cent. If it were possible for us to detach the figures for private academies, the resulting percentage would be a trifle larger, because the per capita cost is over twice as great in the academies as in the public high schools. In the same year Massachusetts aided public high schools—private academies are not assisted—to the extent of $56,613.94, out of a total cost of $2,761,426.97, or 2 per cent. The statistics for Massachusetts include only the direct state subsidy to high schools and the state payment of high school tuition; for the income of the Massachusetts School Fund and state aid to superintendency unions apply to both elementary

and high schools. But a further analysis of the figures at hand does not confirm the impression that New York as a state excels Massachusetts, relatively as well as absolutely, in the support of non-urban high schools. In the latter state the direct subsidy of $500 and the reimbursement of tuition manifestly affect only non-urban high schools and students. In New York, on the other hand, three out of the four items of state aid—payment of the $100 quota, for library books, apparatus, and pictures, and for attendance of academic students—go to public and private secondary schools in and outside of cities. As closely as the present writer is able to estimate, in New York the state aid to non-urban high schools is about 4.5 per cent. of the total cost of public secondary education, as compared with 2 per cent. in Massachusetts. On the assumption—not quite true, at least for New York—that the per capita cost is the same in and outside of cities of 8,000, about 9.5 per cent. of the total expenditures for non-urban high schools is paid by Massachusetts and about 15 per cent. by New York. But these figures have disregarded the income of the Massachusetts School Fund and the state aid to superintendency unions. Assuming roughly that secondary and elementary schools are benefited thereby in the proportion of their relative cost, we find that Massachusetts really aids her non-urban high schools about 19 per cent., as compared with 15 per cent. for New York. Leaving out tuition—a loss to any non-urban high school receiving it—it would appear that an academic school with an enrollment of forty is given about $320.50.[8] In a Massachusetts town of less than five hundred families, a high school with forty pupils would receive $500 besides considerable indirect aid from the school fund and from the $1,250 paid to each superintendency union. In the last analysis, then, our statistics indicate that there is not very much difference in the relative amount of state aid to non-urban high schools in Massachusetts and New York.

Both states might well extend more support, for many other states relatively exceed them in this respect. Certain communities are unable, even with a high rate of taxation, to give

[8] Snyder, 77.

their children nearly as good educational advantages as those enjoyed in more favored sections. Cities are usually best able to support secondary schools, which moreover cost less per pupil than in villages. It seems clear, therefore, that New York should devise some means whereby most if not all of its state aid would go to high schools outside of cities. Whether New York should assist private academies, which receive all forms of state aid except the tuition payment, is another question. Massachusetts does not do so.

State control over non-urban high schools is exercised chiefly thru conditions of state aid, thru supervision, and thru encouragement and suggestion. In addition New York greatly influences secondary schools by means of an institution that has no counterpart in Massachusetts. The following requirements must be met before an academic department can be admitted to the University of the State of New York: it must be a union school; it must not only give approved academic instruction for at least 175 days each year, but also approved preacademic education; it must provide adequate equipment and teaching force, schools of high school grade being required to have at least two teachers who devote some time to academic work; it must have a regular attendance of not less than five students holding a preliminary certificate or its accepted equivalent; it must have suitable apparatus and reference books.

The conditions under which state aid is granted have been discust in a preceding section. We have seen that in this way both states, and especially New York, have a large amount of control: Massachusetts chiefly thru the prescription of certain minimum, tho not detailed, requirements and thru approval by the state educational authorities; New York in these ways and also thru a state system of examinations.

From 1864 to 1900 the distribution of the New York academic funds was dependent on state examinations. The policy was changed in 1900, but returned to in 1906, the Regents asserting as the reason that inspection showed the work of students and teachers in schools taking examinations to be better than in those not taking them. The examinations are

mandatory only in the last two years of the course; and schools can, moreover, determine their requirements for promotion and graduation irrespective of the results in the state examinations; but for admission to city training schools or state normal schools it is necessary to have a certificate based upon the preliminary and academic examinations. These Regents examinations include the usual high school subjects; the particular field covered in each is outlined in the *Academic syllabus,* which is revised every five years with the help of a committee of high school and college educators. The papers are set by the inspectors and by members of the Examinations Division, and are also corrected by the State Education Department. Thus the state largely controls secondary admission requirements and courses of study.

The Massachusetts State Board of Education requires high schools to be approved for receiving the $500 grant; for receiving students for whom the state pays one-half or the entire tuition; and for certification so that their graduates may be admitted to the Massachusetts normal schools without examination. This approval necessitates some kind of state supervision or inspection, which is performed by one of the state agents. Unfortunately he is unable to give all of his time to that phase of his work. He visits a high school as early in the year as possible, and makes a record of its organization, accommodations, equipment, course of study, and quality of work. When possible or desirable, these visits are followed by conferences with teachers and school officials, " at which commendations, criticisms, and suggestions " are plainly stated and generally well received.

New York has much more authority than any other state in the supervision of instruction. The State Education Department has fourteen inspectors who visit, inspect, and report upon high schools and academies. The inspector gets information about the school grounds and buildings, including their care, sanitation, and adequacy. He also inspects the library and laboratory equipment, the course of study, the daily program, the teachers, and in fact all matters of school organization, discipline, and instruction. Afterwards the in-

spector confers with the principal and teachers, and with the superintendent and board of education. On the basis of the inspector's written report the Chief of the Inspections Division corresponds with the local school authorities. As a result school buildings are often repaired and enlarged, and new ones constructed. Courses of study are revised, boards of education are incited to greater activity, principals and teachers stimulated to greater efficiency, and incompetent and unfaithful teachers removed. As Dr. Goodwin remarks, the usefulness of this inspection is greater in small schools that have no systematic supervision, and that are under the charge of comparatively inexperienced teachers.

It is evident that New York, with its fourteen inspectors of secondary schools, can supervise them much more thoroly than is possible in Massachusetts, where, in a recent year, one agent visited 112 high schools with a total of 450 teachers. Supervision in Massachusetts is chiefly inspection to see whether high schools have come up to the standard required for approval. New York at least undertakes to do constructive supervision. It must be remembered, however, that Massachusetts has a highly organized and effective system of local professional supervision, while in practically all of the smaller places in New York there is no local supervision worthy of the name.

Encouragement and suggestion are necessarily included in state supervision. They are, indeed, the chief functions of the Massachusetts Board of Education. This body requires all public schools to furnish statistics and other data to the secretary of the board. On its part the board disseminates information and offers suggestions. The secretary and agents make many educational addresses, especially at state-conducted teachers' institutes. The high school section at these meetings is evidently in charge of Mr. Macdonald, who has tried to make the "instruction definite and practical," and to get experienced educators as instructors. Letters of commendation from school superintendents and committees show that the institutes have been in a measure successful.

State encouragement and advice seem to play a much less im-

portant part in New York. The state, however, usually holds an annual teachers' institute in every school commissioner district. The schools are closed during institute week, and attendance is compulsory but compensated. The sections, elementary and advanced, are led by institute conductors and instructors, whom the State Education Department regularly employs. In the opinion of Dr. Draper, the arrangement serves its purpose as well as any system in rural districts that are without regular supervision by professional superintendents.

The state affects non-urban high schools in other ways than thru conditions of state aid, thru supervision, and thru encouragement and suggestion. The annual reports of the New York State Education Department are distributed to all schools belonging to the University of the State of New York; and the reports and other printed material of the Massachusetts Board of Education are sent to every town. New York State licenses secondary teachers. The Massachusetts State Board of Education has no compulsory authority over the certification of teachers, but school committees may accept normal school diplomas and the teachers' certificates granted by the state board. Both states do something in the way of training secondary teachers. The New York Commissioner of Education is the final judicial authority in school matters. The state educational officials of Massachusetts have no legal power to decide appeals or to settle disputes between school officials; but the secretary or agents are often asked to arbitrate in school questions. The Board of Education examines union superintendents and thus affects high schools indirectly. Finally, the board is the professional adviser of the legislature—important, since central control is largely legislative.

No definite statement as to which state excels in its non-urban high schools can be made simply on the basis of the relation of the state to rural secondary education. Points of strength and weakness can, however, be indicated. The Regents' examinations tend to brace up inferior secondary schools; and under the system the graduate of an obscure high school is on a par with the graduate of a large city high school when

he seeks admission to a distant college. On the other hand, much of the work is reduced to mere preparation for examinations, which are generally regarded as pernicious when used as the chief test of ability and achievement. New York has a close and effective control over all grades of public and private secondary schools; but there is considerable opposition in some quarters to the extreme centralization of the New York educational system. The Massachusetts system is much the more democratic and much closer to the people. This responsiveness to the public pulse has many advantages; but it may be an element of weakness in a community with little wealth and with low educational ideals. Massachusetts holds all four-year high schools up to a certain standard, but seems to furnish no guarantee for the efficiency of other secondary schools.

Secondary education in New York and Massachusetts has much of significance for other states. The practise of consolidating two or more districts or towns that are individually too weak to support a high school is to be commended. In some states the state superintendent and board of education are little more than collectors of statistics and dispensers of money. In Massachusetts and New York the state educational authorities have a powerful influence for good upon all non-urban high schools. They not only hold backward communities up to definite required standards, but lead the way in educational progress.

ALDEN H. ABBOTT

YREKA, CAL.

IV

PRACTICAL EDUCATION FOR INDUSTRIAL WORKERS

Education adapted to meet the daily needs of the industrial worker is coming to be as important as the education of the child.

We should bear in mind that the average length of a boy's school life until recently was only about four years, and that was before he was 12 years of age. Then again we are not sure that he received this amount of education, as no systematic method was adopted till recently to keep the boy at school. Consequently these boys who are now the industrial workers have received little, if any, more education than that obtained during these four years.

With the development of the industries, which has been very rapid, have appeared new demands for more men, each with larger ideas, greater capacity, and more training. At one time the shop and mill was a training school for workers, but it is no longer so. The old apprenticeship system is dead, and under the specialized condition of modern industries, a worker knows but one part of the numerous industrial operations. He works day by day at the same kind of work and under precisely the same condition,—the operation and the machine usually requiring little thought and ingenuity. The average worker knows nothing about the machine itself or the operations that precede and follow his own, and very little about the raw materials that are used. Under such routine work and circumstances the industrial worker loses the habit of thinking, since no demand is made on him for thought. As a result of having had no systematic demand for his earlier education, by the time the worker enters manhood, or is ready to be promoted to a higher position, he is likely to forget what schooling he has had before the age of 12 or 14, and is apt to

be intellectually less efficient than when he left school. Hence, it is not surprizing that the average industrial worker in this country has neither the power to advance industrially, nor to compete with the workers of Great Britain and the Continent. European countries are far in advance of America along the lines of industrial training. Every European industrial city of any size has a technical school which the operative may attend and receive technical instruction and shop practise in his trade. The result is that the most successful workers, foremen, and overseers of our industries are foreign-born men, educated in these schools; while the American-born workers are obliged to remain in the lowest-paid positions.

Recent investigations show that the average German mechanic is the best trained workman in the world, not because he is more intelligent, but because an important part of his schooling prepares him specifically for his trade. An employer of labor and student of industrial life in America recently declared before the National Education Association that already 50 per cent. of America's skilled mechanics are born and trained in foreign countries. Later investigations show that 98 per cent. of the foremen, bosses, etc., in the manufactories of New York State were educated across the water.

The heart of Germany's system of industrial education is the continuation school, and this is not an outside movement grafted to the school system in an overzealous endeavor to educate the masses, as some educators would have us believe, but has a direct connection with the common school on one hand, and with industrial activities on the other.

Germany's continuation schools are chiefly of two types: those fitting for the requirements of commercial life, and those directly planned to meet the needs of shops, the factories, the local industries, and the trades. The industrial and commercial schools differ from our industrial and commercial schools in that their course in metal and wood shop practise, textile work, etc., can not be taken alone. There must be added for nearly or quite one-half the course technical processes, practises, and mathematics of that branch. Similarly the business processes, including such subjects as production, markets,

distribution, consumption of the product, price fluctuations, etc., to all their commercial courses. The object of all this is to develop industrial and commercial intelligence rather than create merely mechanical skill.

In Massachusetts while more than 80 per cent. of the boys 15 years of age have dropt out of school entirely, and are receiving no instruction in the theory or practise of their trade, in Germany the practical schooling of boys 14 to 16 years of age practically begins and often continues two, three, or more years, and their attendance at particular kinds of industrial schools suited to the occupations they have selected, is rigidly required. In Berlin, the model city of Germany in matters of education, 55 per cent. of the boys between 14 and 18 attend such schools. Yet in America, with all its magnificent systems of public schools, only one-third of one per cent. of all the boys and young men between 15 and 24 years of age are receiving any definite instruction in the sciences and arts which bear directly on their occupations.

There is accordingly a large demand growing out of everyday needs for educational opportunities not afforded by our existing public school system,—a demand made by those deficient in early education who are desirous of making up this deficiency, and by those who seek to supplement their acquired skill with technical training that will lead to advancement and increased earning power.

There is no question that the most ambitious workers in every industry will take advantage thru evening or day study of every opportunity for securing a practical education. The success of the classes of the Y. M. C. A., the textile schools, and the correspondence schools bear witness to this statement. In the city of Lawrence, before the industrial school opened, over 140 workers traveled 18 miles to attend an evening textile school; going directly from the mill and deferring their evening meal till they returned home at midnight. In the same city over 2,000 workers are enrolled in the correspondence school; paying from forty dollars to one hundred dollars for a course. The following statement shows how unsuccessful and difficult instruction by correspondence is: The

International Correspondence School having admitted in an article in the *American machinist* that but 2.6 per cent. of the students have been awarded a certificate or diploma. The vast majority of men enrolling are soon discouraged, and frequently lose faith in their work.

The question may be asked, "Are not the existing evening schools meeting the demands of this kind of education?" In order to enter our present evening high or technical schools the applicant must be a graduate of a grammar school or pass an examination equivalent to the work of the ninth grade. As I said above, very few of our industrial workers are graduates from the grammar schools, and those who are not, can not pass the entrance examination. Most of the students in the existing technical schools are superintendents, firemen, and overseers of shops and factories. So there is a need of an educational institution to meet the needs of the industrial workers. Some educators may say, as the principal of the textile school said to me, "Let these workers go to the evening elementary school until they are qualified to pass the entrance examination to the technical or evening high schools."

A former superintendent of public schools of Springfield, Mass., one of the foremost educators of the country, and one whose progressiveness is shown by the introduction of industrial training into public evening schools, sought to discover why mechanics, mill workers, etc., did not attend our present evening schools. One reason assigned was as follows:—Instruction in both the evening elementary and high schools usually draws a large number of people who are relatively young,—that is, boys and girls from 14 to 15 up to 25 years. Older mechanics and mill workers, who may, perhaps, have some reputation in their trade, and who wish to perfect themselves in certain technical lines, do not wish to be grouped with persons of that age, feeling that such persons, having come recently from the public schools, are able to answer questions better, use English better, and appear to better advantage than their older associates. Mature men are often sensitive about the comparisons which the younger members of the class are apt to make at their expense.

A second reason was that the public evening schools usually aim at teaching a subject quite systematically and modeled (possibly too much so) after the day schools. Industrial workers have intensely practical aims when they come to an evening school, and are unwilling to study systematically an entire subject; they demand that the instruction shall lead directly to the specific things which they want to know. If they are put into classes in which they are obliged to spend a month or more on preliminary work, the value of which they do not immediately discover, they will not attend.

So it is clear as the result of this investigation, that the present evening technical and evening elementary and high schools can not meet the educational needs of the industrial worker.

The purpose of most of our evening technical schools is to give not only the highest possible instruction in science, but the application of this knowledge to the operations of the industry. The evening courses are the same as the corresponding day courses. What is needed is a school lower in its entrance requirements and giving instruction of a character more directly vocational or concerned with the daily needs of the worker. This idea has been carried out in the Lawrence Industrial School. It was established two years ago under the Industrial School Act. The school is free. Textbooks are furnished free. These books are edited by the instructors, and printed by the Commission on Industrial Education. The problems, drawings and notes are problems, drawings and notes coming from the mill and shops, so that the school keeps in touch with the industries. These notes and problems are obtained by means of a question box placed in the classrooms. The instructors are practical men working in the industries and conversant with the needs of the operators.

Our evening instruction appeals to the student immediately at the beginning of his work. For example, a young machinist had received a reprimand from his foreman because he could not read a working drawing with sufficient skill to do properly his daily work. He enrolled two years ago in the mechanical drawing course in the public evening drawing school, thinking this course would meet his deficiency. He found that the first

two lessons were concerned with lettering plates, the next three with drawing straight and curved lines and the handling of instruments, and that the remainder of the term was spent on the projection of points, lines, surfaces, and solids. During all this time he was receiving in his daily work the same reprimands, and was therefore debating in his own mind the value of the drawing course. It is undoubtedly true that the drawing course this teacher had outlined in the drawing school is a proper one for teaching mechanical drawing for those who are to be draftsmen, but the average apprentice machinist as well as this young man does not see the direct application of this instruction to his work. He enrolled in the drawing school for a definite purpose. To be sure it was a narrow one, but nevertheless it had economic value to him. As the result of this young machinist's experience the principal of the Industrial School immediately offered a course in blue print reading and arithmetic for machinists. This is one of the most popular courses in the school.

The first lesson begins with some elementary instruction in the reading of simple drawings; to teach him in five lessons where to look for the dimensions denoting length, breadth, and thickness; to show him the principles of simple sectional drawings and have him comprehend the laying out of holes for drilling. Instead of leaving school at the fifth lesson, with no instruction which appealed to him, the student has received enough in those five lessons to fit him to meet the needs of his foreman, and is anxious to continue and receive the more definite and thoro instruction in the theory of mechanical drawing, so as to be able to make sketches of machines and parts by means of a ruler and compass. It is not the aim of this course to teach the students to make pretty picture drawings.

The instruction in the various branches of mathematics are adapted to meet the needs of the mill operative, the machinist, and the steam engineer. The terms used in the classroom savor of the shop and mill. For example, how to find the heating capacity of a boiler does not appeal to the weaver in the mill. On the other hand, how to find the size of pulley for a certain loom does not awaken the interest in the steam en-

gineer as much as the problem involving the same operations dealing with a problem in the boiler room.

All our students are classified into vocational classes according to their trade. For example, there is a class in arithmetic for engineers and a separate class in the same subject for boiler firemen. Again, the textile designers have a class in arithmetic called cloth calculations. This idea carries out the plan of the old workingman's guilds. Each guild was formed for the purpose of social intercourse and mental stimulus. Each trade had its own guild. The daily trade experiences of each member became the property of all members. Discussion relating to the practises of their chosen trade occupied their attention. So today working men have common trade interests. Our evening students are grouped according to their occupations, and in this way have an opportunity to talk over these interests. The teacher acts as a leader and draws out the students in telling their trade experiences, and thru the expression of these various opinions the work practical solution of the particular problem at hand is obtained. It is difficult to get students to recite and express themselves at the blackboard. A free discussion of the point at issue makes the student lose his self-consciousness, and before he is aware of it, he is at the board illustrating his particular method of solution. Of course, such discussions are under the wise guidance of the teacher.

Provision is made for students who can not attend but once or twice a week. It is quite common for students to stay away because they can not attend "regularly." This applies to a great many textile workers. In prosperous times the mills are run evenings, and the employed are expected to work overtime. But they can usually get away for one night in the week during such times. They can not always tell definitely what nights they will be called upon to work. Students who are working overtime are allowed to attend any night during the week after the work is fairly started. Such a plan is feasible. Boiler firemen alternate in working day and night. A fireman who works days this week will work nights next week, and so on. The week he works nights he attends the day classes, and the next week he attends the evening classes.

A certificate is awarded each person completing a course. Day classes are formed for the convenience of those who are unable to attend the evening sessions.

The school is in a position to compete with any of its kind, over $32,000 being represented in its up-to-date woolen, worsted, cotton, and steam machinery.

Classes in the following subjects will be formed for both day and evening pupils: Woolen and worsted spinning, woolen and worsted weaving, woolen and worsted finishing, dobby and jacquard weaving, cotton spinning, cotton weaving, loomfixing and loom calculations, mill arithmetic and mill book-keeping, elementary and advanced textile designs, elementary and advanced cloth calculations, industrial and commercial electricity, steam engineering for firemen, steam engineering for engineers, arithmetic for firemen and engineers, blue print reading, machine drawing and arithmetic for machinists, shop arithmetic, industrial and commercial chemistry, experimental and practical dyeing, and dressmaking for working girls.

The courses of woolen and worsted manufacturing are arranged to meet the daily needs of those working in these industries. Instruction is given in all the various processes employed in adapting the wool fiber to cloth; namely,—sorting, scouring, carding, combing, spinning, designing, weaving, dyeing, and finishing.

COTTON COURSE

The cotton courses are designed to meet the needs of the men working in these industries;—to make better workers of them and to train them to think and take an interest in their work. If sufficient numbers register, classes will be formed in picking, carding, drawing, roving, spinning, combing, designing, and weaving. In connection with this work a course in knitting is offered. The equipment of the department is of the best up-to-date cotton machinery.

EXPERIMENTAL LABORATORY, DYE HOUSE, AND INDUSTRIAL CHEMICAL LABORATORY

This work is carried on in a building located in an ideal spot for a dye house. It is situated on the banks of the Merrimack

just above the falls, away from the classrooms and dwellings. It is modeled after one of the most practical experimental laboratories in the country.

Besides lectures and recitations upon dyeing, students will perform careful and systematic experiments as to the nature of the various dyestuffs and mordants, their coloring properties, their action under various circumstances, and conditions under which they give the best results. The more representative dyestuffs of each class will be applied to cotton, wool, and silk, and each student will be obliged to enter in an especially arranged sample book a specimen of each of his dye trials, with full particulars as to conditions of experiment, percentage of compounds used, time, temperature of dye bath, etc.

For convenience and economy most of the dye trials will be made upon small skeins of swatches of the required material, but from time to time students will be required to dye larger quantities, in full-sized dyeing machines under conditions of a practical dye house.

By use of a small printing machine the principles of calico printing are illustrated, and the practical side of the subject will be studied with dyeing machines, vats, etc. It will be the constant endeavor of those in charge to impart such information of a theoretical character as will be of value in the operation of a dye house and will make a better worker of the student.

In industrial chemistry particular attention is paid to those subjects which are of especial interest to the textile worker, as oils, soaps, gas, and the coal-tar industry; and the manufacture of important chemical compounds, such as the common acids and alkalies, bleaching powder, various mordants, etc. Cabinets containing the various dyestuffs, chemicals, and by-products of wool grease are on exhibition in the dye house, and students have an opportunity to study them.

STEAM ENGINEERING AND ELECTRICITY

One of the strongest departments of the school is the course in steam engineering and electricity. The course consists of

lectures by practical men for engineers, firemen, etc., and laboratory practise in steam engineering. The steam engineering laboratory is one of the best equipped laboratories in the country, consisting of different types of boilers, steam heating apparatus with appendages, different pumps in sections, sectional valves and gages, all the boiler accessories, steam engines, generator and many other machines. In addition to all these, pictures, blue prints and sketches of the above apparatus and other machines, are on the wall for careful study. All the lectures, classes, and demonstrations are carefully planned to meet the needs of those working in the trades. Classes are formed afternoons for those working nights, and evening sessions are conducted for those laboring days. In addition to evening and day classes for those already at work, provision is made for day classes for boys and girls between fourteen and seventeen who are not at work. The course is three years, and is devoted to the three following distinct courses: Textile arts for boys, mechanic arts for boys, and the domestic arts for girls. A diploma will be awarded to pupils who have past the work satisfactorily.

The textile arts will give a training in the simple operations and theory underlying all the occupations of the textile industries in addition to a sound academic and business training.

The mechanic arts will give a training in the fundamental operations and theory underlying the great number of occupations of the wood and metal trades in addition to a sound academic and business training.

The domestic arts course will give a training in the branches of knowledge and the trades that are most useful to girls in gaining a livelihood, and also preparation for both business and home life.

The courses of study are planned with the following conditions in mind: That while the school will offer a three years' course in the useful arts, it recognizes the fact that many children can not afford to give so much time to education beyond fourteen years of age. Hence the work is planned so that the work of each year is, as far as it goes, complete in itself, that nothing is taught on the theory that it will be of value at some

later period in the course. So that at whatever time the pupil leaves school he will have had, up to that time, the best preparation which the school could give.

It is not a trade school to fit pupils to be spinners, carpenters, or dressmakers only, but a school to open up the avenues to the industries and trades, and to give a training that carries the skilled worker on to unlimited earning power.

The school will give a practical education to the great mass of children who will be obliged to work in either the industrial or commercial fields, and will include:

1. Children whose parents now send them to high school and who do work in the classics and literary branches after a fashion, but who can be roused and educated along the line of practical education. It is for the child who does not like "to study," but who wants to do things, who wants to see and know the use of things, who is of a practical rather than the academic mind.

2. Children whose parents do not feel that they can afford to give more time to the child for purely academic work, yet would feel they could afford a child a further education if it would aid him in getting started in some form of skilled industrial work.

The school is parallel to the existing high school and has the same school hours and term, but is different in its course of study, as the high school is dominated by the college while the industrial school is not, but is influenced by the industrial and educational needs of the working people.

COURSES OF STUDY

1. TEXTILE ARTS—BOYS

FIRST YEAR	SECOND YEAR	THIRD YEAR
Business English, mill arithmetic and manufacturing bookkeeping, industrial history, mechanics and electricity, raw material, carding and spinning, weaving and warp preparation, designing.	Business English, mill mathematics and manufacturing bookkeeping, industrial chemistry, industrial history, carding and spinning, weaving and warp preparation, fabric analysis and designing.	Business English, mill mathematics and bookkeeping, industrial chemistry, industrial history, carding and spinning, weaving and warp preparation, fabric analysis, designing, dyeing and finishing.

2. MECHANICAL ARTS—BOYS

FIRST YEAR	SECOND YEAR	THIRD YEAR
Shop and business English, shop arithmetic and manufacturing bookkeeping, industrial history, mechanics and electricity, study of wood and iron and the process they pass thru, blue print reading and machine-sketching.	Shop and business English, shop mathematics and manufacturing bookkeeping, industrial history, mechanics and electricity, mechanical drafting, machine sketching, study of the processes of iron.	Shop and business English, shop mathematics, industrial history, mechanical drafting, machine shop practise.

3. DOMESTIC ARTS—GIRLS

FIRST YEAR	SECOND YEAR	THIRD YEAR
Business English, practical arithmetic and bookkeeping, industrial history, dressmaking and dressmaking designs.	Business English, practical arithmetic and bookkeeping, industrial history, dressmaking, cooking and millinery.	Practical and business English, business arithmetic, industrial history, dressmaking, millinery.

WILLIAM H. DOOLEY

INDUSTRIAL SCHOOL
LAWRENCE, MASS.

V

THE CHURCH AND THE COLLEGE

In a very interesting address before the Educational Conference of the Southern Methodist Episcopal Church, President Pritchett of the Carnegie Foundation for the Advancement of Teaching, has discust the relation of the Christian denominations to the colleges. This address, appearing in the EDUCATIONAL REVIEW, published by the Carnegie Foundation, and commented upon by such a journal as *The Nation,* deserves more than passing notice on the part of all devoted to the denominational college.

In its purpose of advancing teaching and raising the standard of education, the Carnegie Foundation, which does not aid strictly denominational colleges, has been compelled to state why it passes by the church colleges. The elimination of the church college from the approved list has necessarily led to a discussion of the denominational college.

The first position which may be taken by a denomination toward the college is thus stated by President Pritchett: "A church may frankly say that, in order to carry out its legitimate work and advance its cause, it must control and direct a certain number of institutions of higher learning in which men may grow up trained in its ideals and devoted to its service." The motives which lie back of this are described as the strong desire to propagate the faith for which the denomination stands, and to train denominational leaders. But it is questioned whether what the Church could do formerly it can accomplish at the present thru general education. The cause of the Church has been weakened because it has been induced to add colleges by adopting institutions that sought the Church to gain a constituency. Education, it is further claimed, ought not to be at present a great work of the Church, nor one of the agencies to which it should direct its energy.

In the whole discussion summed up in these leading thoughts, it is supposed that the denominational motive is all-controlling, and that a denominational college exists largely only for its specific church. President Pritchett believes that the average American citizen of religious life and religious aspirations is not wholly in sympathy with such a church college, but it is not sufficiently recognized that the denominational college has been influenced by a wide ideal, and that it combines its historic denominational connection with its larger educational purpose.

It is true that the statement is made: "The wish to bring religious influence into college life is also one which has played a part in inducing organized bodies of Christians to undertake the control and support of colleges. How far this motive has had influence, it is difficult to say." But over against this partial admission, denominational rivalry is made a much larger element than the motive of religious education, and in this assertion full justice is not done to the controlling religious ideal of the denominational college. The weakness of the denominational college is shown in a stronger light than its ruling purpose. No doubt the lack of a true appreciation of just what Christian education is, and what in various ways the church college is doing for Christian education, is responsible for this whole attitude. It is assumed that Christian education in its highest and broadest form is found outside of the church college. And as a basis for the claim that Christian education can be carried on without the medium of a church college, President Pritchett attempts the following definition of Christian education:

"Much confusion has heretofore existed as to just what is meant by Christian education—a confusion which arises partly out of the almost universal failure to discriminate between religion and church membership, and partly out of a lack of appreciation of the intellectual strivings of the college and university student.

"The essentials of religion are the same whether men belong to one religious organization or another. Religion is a life springing up in the human soul which blossoms into forgetfulness of self in the service of God and men. This life

exists without any reference to the denominational or ecclesiastical definition of it. It has, in fact, to this formal expression much the same relation that the stars have to the science of astronomy, or that the flowers have to botany, or that the chemical reactions have to the textbooks in chemistry. Now shall Christian education mean the effort to bring into the minds and into the lives of students the conception of religion as a life, or shall it mean the presentation of the forms of worship of a particular denomination and the claims of a particular view of truth? And shall the methods by which these elemental relations are to be brought to the attention of college boys be those of the congregation, of the Sunday school, of the revival, or shall they take account of the intellectual processes thru which the student is developing? Shall they be planned to appeal more directly to the emotions or to the reason?"

In the endeavor to draw a distinction between religion and church membership, an unreal separation is effected. For the life of religion—and religion here means concretely the Christion religion—has been carried on and perpetuated by the agency of the Church, despite her weaknesses and aberrations. It is the Church and her leaders that have stood for religious ideals which have stimulated others to accept them. It is the Church which has handed down the Bible, and thru whose activity religion has been advanced in the world. Consequently, it is an unhistorical and academic distinction which practically tears apart religion and church membership. It is true that outward church membership of itself is no guarantee of religion, but the non-appreciation of what the Church offers is no proof that she is not the purveyor of religion, and that consequently church membership is not a help in the religious life.

Again, the conception of the essentials of religion, as independent of religious organization, is misleading. It rests, perhaps unconsciously, on the idea that the religious fundamentals live on, apart from, and without a religious organization. The historical fact is, that only thru definite Christian bodies have the essentials been handed down, and the thought of an ex-

istence of them as separate from the actual life of any individual organization, is an academic construction. In the question of essentials, it is generally the mistaken attitude of today to decide upon them by taking the minimum of truth and by making a wide generalization to include as many churches as possible. The real method ought rather to be to determine what the original sources and documents contain, and how these have been historically appropriated. This will result in a much larger body of essentials than is found by the method of reducing them to suit the men whose Christianity is so emaciated that it is almost nothing but theism. Most churches hold to a much larger and fuller conception of religious essentials than simply the idea of God and the moral excellence of Jesus, which is about all that is imprest upon men in the undenominational institution, if there be any direct reference made in the teaching of the college. Therefore it is not the actual statement of the case to speak of the sameness of religious essentials when application is made to all colleges.

Religion is defined as "a life springing up in the human soul which blossoms into forgetfulness of self in the service of God and men," and is supposed to exist without reference to the denominational attitude. This definition is an unpsychological and unhistorical assertion. Religion is assumed to be a life which is purely activity, for I take it that self-forgetfulness is regarded as the way towards service, so that essentially religion is service. Now it is true that action is the end of life, but behind action lie ideas, feelings, motives. And so wherever we may place the main accent in our analysis of religion, if it be regarded in its psychological reality, it must have thoughts as well as feelings, motives as well as attitudes. How can I forget self in the service of God and man without some definite thought as to what God and man is? Why should I serve and how can I best serve? Must these necessary questions not lead back to some ideals of the intellect? Does not the man who makes religion service unconsciously presuppose intellectual convictions? No matter how few may be the creedal elements of my Christian life, they can never be absent. There is no religion without conviction, and convic-

tion implies some relation to the truth, not simply as feeling or willing, but also as intellectual apprehension. Christ, thru whom, as reported by John, the thought of religion as life, has actually come to us, combines with the emphasis of life, truth. He claims to be the way, the truth, and the life. He is not life simply as service apart from truth. Consequently, when we take the conception of religion as life, which we owe to Christ, it is well to know what He said such life was. And it is in the appropriation of Christ, and in consonance with the experience of what He is to man as an individual and for the race, that close thinkers have felt it necessary to combine truth with life. Because, therefore, truth is a part of the religious life, and because this truth has taken shape and come to historical expression in the various denominations, they stand for the necessity of some definite teaching and truth. It is purely an assumption to say that this life exists apart from denominational definition. Denominational definition may emphasize certain aspects of it, may even misinterpret certain parts of it; but, nevertheless, this life, as truth for the intellect, as truth for the highest emotions, as truth for the noblest service, is actually carried on and forwarded thru the agency of the various denominations. If, therefore, there is a value in religion for education, and if, despite their variations, the denominations are the bearers of this life, then they can best undertake religious education.

It is a mistake to suppose that the denominational college lives religiously to present forms of worship, methods of conversion, Sunday school instruction, peculiar views of truth, and that its schemes of teaching religion generally contravene the intellectual ideals of the young students, or fail to meet their honest inquiries. While there may be some teachers of religion in the denominational colleges who misinterpret their places, yet most are doing what the undenominational college never does, that is, leading the growing mind into the larger conceptions of religious truth. They are teaching men to put away childish things in their thinking about religion. In the very large college not under religious control, there is mostly not even a required course in ethics. Only incidentally, but not

in a systematic way, are the students taught the great moral relations, in duty, virtue, and the highest good. Consequently, many students live under the impression that there is no systematic and harmonious relation in moral facts. It is the average church college which, apart from any religious teaching, is keeping alive the practise of making men think in their more mature stage of moral questions by direct teaching and discussion. And thus, in the same way, religion is mostly taught in its great problems and implications. Whatever denominational weakness there is does not detract from the fundamental value of religious instruction. The breadth of college teaching generally avoids that, for it usually passes from a delineation of theism to the great historical and religious claims of Christianity. It is the church college which does not allow non-Christian teachers to promulgate views that are subversive of all religion. The cry which was uttered in a meeting of college leaders at the seventy-fifth anniversary of Haverford College by Professor George Wharton Pepper, that men ought not to be allowed to go astray in the highest issues of life for want of guidance, has been answered by the denominational college. It puts before men the great questions, the great duties of the present, and also the great assertions of religion.

Because the denominational college takes this attitude, it can claim what President Pritchett asserts as the second possible position, namely the right of the Church to control the colleges on the ground of "its fitness and efficiency as an educational agency." The educational right of the denominational college rests upon the place which religion has in forming character. If education means simply efficient methods of imparting knowledge, high intellectual standards of scholarship, excellent administration, and if the finality is not character, and if in developing character religion is not most powerful, then the church college has no claim to existence, and the sooner it closes, the more effectively a great waste will be done away with. But if religion is a necessary factor in full and harmonious education, then the denominational college can claim its place in the educational work with strong assurance. The

church college has greater religious power because it adds to the free association among young men the definite teaching of religion; its professors stand for something, and they have a motive to present. It is the very absence of a strong religious and moral motive which is being felt in much present-day education. But the denominational college has great opportunity to present the controlling motive because it adds to the usual duties of men the highest sanction, and hallows all relation to men by man's faith in God.

Furthermore, because religious influence is usually brought to bear upon young men thru the teaching of the Bible, the denominational college makes for greater literary efficiency of all its students. It dares to interpret not only the body, but the soul of Biblical history and truth. It does for all its students what is done for some by the general literary course of colleges, in teaching the Bible as literature. But it accomplishes more, in that not simply the linguistic form and the outward content are noted, but the inner power is permitted to have its influence.

In the presentation of religion the denominational college also leads many, who may not take any philosophical course, to consider some of the highest problems of existence, and to adjust laws of nature and postulates of science to the implications of God, immortality, righteousness, and freedom. Many church colleges still retain, even apart from religious instruction, a required philosophical course, so that the student may be led to trace facts back to first principles, and to distinguish in every science between data and inferences. It thus makes clearer and more balanced thinkers. But even when the philosophical course is not obligatory, religious instruction supplies some of the training gained in thinking about great masses of facts from great unifying principles.

There is also in religion a wonderful cultural power. It refines and elevates thoughts, feelings, and will. In such uplift there is none of the danger of mere estheticism, which often fails to make strong men thru its cultivation of admiration for beauty alone in literature, fine arts, and music. Religion makes deeply sensitive as well as strongly active men.

Because it is thus the most effective cultural power, it fulfils the cultural longings of other specific culture studies. Thru it, also, men can understand some of the most wonderful creations of all art, whether in stone, on canvas, or in tone. It is the key to the whole art of the Middle Ages. But as this art is bound up with the life and history of the Middle Ages, there can be no full understanding of this history without a realization of the religious motive. Still less can the dawn of modern history be rightly appreciated in the movement of the Reformation, unless the great intellectual, cultural, economic, social, and political changes are seen emanating from the upheaval which the religious experience, leading to freedom of conscience, brought about. Consequently, for these reasons and others, which might be named, the education that includes religion furnishes a larger key to unlock the history of the past to explain the present, than the education which neglects this fundamental fact in human life and history.

Now it may be admitted that sometimes there is a departure from the highest ideals and practises in the denominational college. Where are ideals fully carried out? It may also be true that there has at times been a lack of making all the activities and life of the church college consonant with its profession; that there have been sins of omission and commission in methods. In athletics, sins are to be named that obtain in colleges where the Christian motive is not directly emphasized. And if such wrongs are constant, a denominational college has lost its savor and is only worth being cast out and trodden underfoot. But, nevertheless, the failure to realize the ideal is no disproof of the ideal. It is entirely true that there has sometimes crept in a mechanical conception of religious education, and that there has been an educational insincerity in the claims of some denominational colleges. President Pritchett is entirely right when, in this respect, he calls those that are sinners to repentance. It is a shame and a denial of the claim of its fundamental religious attitude for a college to aspire to do what it can not do rather than to be content with the name of academy; and it is equally wrong when a legitimate college inflates itself with the name of university. However, the de-

nominational college has not been the only sinner in this matter. It is also true that sometimes churches have not valued their own institutions, without which their continuance would not have been possible. But today greater activity is evident, and equipment is being brought up to modern requirements. It is a mistake, as all admit, when a church has more colleges than it needs. But the mistake, in a very few instances, does not justify the impression that there is a general overlapping.

The third attitude of President Pritchett is that "a Christian organization may take the position that all colleges and universities, being influenced by agents in the training of men, are also agencies for moral and religious influence, and therefore the Church will seek by friendly cooperation, by sympathetic fellowship, by all the means of Christian activity, to make itself a religious influence in all institutions of the higher learning without assuming their control or support."

A very important condition is touched in this position. Never are all the students of a church in its own institutions. The better it covers the field of general classical training, which is its specific problem, the less can it meet the demands of fullest scientific and technical training. Consequently many of every church will be studying beyond the direct influence of its own teachers. Now to meet this emergency it seems expedient to undertake what some churches have begun; namely, to organize their own students in every general institution. At the head of such organization there ought to be placed men of the highest type, who are in deepest sympathy with college and university ideals, and who present to the young men the truths of religion as best fitted for their stage of development. But this work can only be done best when connected with the centers of certain denominational colleges, which ought to prepare the men for such labor and stimulate to its continuance. While, therefore, a real duty is put before all churches in the last position indicated by President Pritchett, yet the efficiency of this duty will depend upon such denominational leaders as the denominational college alone can develop.

JOHN A. W. HAAS

MUHLENBERG COLLEGE

VI

THE EDUCATIONAL SIGNIFICANCE OF MINOT'S THEORY OF AGE AND GROWTH

Too little attention is given by educators to biological writings other than those purporting to have direct educational significance. True, the recapitulation theory is discust in all possible connections and certain of the more obvious facts of embryology are made use of, but, for the most part, newer discoveries and theories receive little attention. Probably very few undergraduate students of educational problems are aware that the biological world feels little interest in the recapitulation theory and does not take it seriously. Any one who reads the recent book of Professor Thomas H. Montgomery [1] of the University of Pennsylvania can get this modern viewpoint of many biologists on this much overworked theory.

The views on the growth of the child which are put forth by Professor Charles Sedgwick Minot of Harvard Medical School seem to be of great importance to the educator. Yet it is doubtful if the book [2] has had any particular sale among the very people who would find it most applicable to their own work. Because it runs counter to many prevailing views and to certain firmly fixt opinions of teachers it may not receive the support from students of education which it receives from biologists.

"A study of cytomorphosis," the alternative title of Dr. Minot's book, may well frighten any but the trained biologist, but this is a case where the "bark is worse than the bite." Indeed, the book is so fascinating from start to finish that one can hardly believe himself reading a scientific treatise by one of the most distinguished of American men of science. The

[1] *Analysis of racial descent in animals.*

[2] *The problems of age, growth, and death.*

thesis presented and defended is that old age is a natural condition, not a pathologic one, and that it is the natural result of changes in the body cells of the individual. The well-known facts of the shrinkage in size of cell nuclei with the oncoming of age are made much of and, indeed, a discussion of the relative size of nucleus and cytoplasmic mass in the cells of the body is presented as part of nearly every chapter. " Cytomorphosis," the form of cells, must be understood if we are to know the laws which govern age, growth, and death. Increase in the amount of cytoplasm in cells loads them with an inert material rendering cells and organs less and less active as the process goes on and as age advances.

Dr. Minot calls attention to the fact that the period of greatest activity, of growth, of development, is during infancy. Old age creeps upon the individual even from the time of birth—or before; constantly lessening power of growth tells the story of Time's influence. Decline in power is most rapid in the early years; it is less during what we call the " prime of life," and least of all in the time which we are accustomed to think of as the senescent period.

Many of the facts presented are old and well-known. Others are the records of experiments carried on by Dr. Minot himself and now put into published form for the first time. The percentage growths of animals by days, weeks, and months are given, graphic representations by means of curves being effectively used. It is shown by what leaps and bounds the young animal gains in weight. In the case of the human species a table from Mühlmann calculated upon observations by Bouchard shows the percentage increments by months as follows:

Age in months	Weight in grams	Monthly percentage increment
0	3,250	
1	4,000	23.0
2	4,700	17.5
3	5,350	14.0
4	5,950	11.0
5	6,500	9.2
6	7,000	7.7

Age in months	Weight in grams	Monthly percentage increment
7	7,450	6.4
8	7,850	5.3
9	8,200	4.4
10	8,500	3.6
11	8,750	3.0
12	9,000	2.8

In like manner it is shown that in the yearly growth of boys [3] there is a gain of 209 per cent. during the first year, of 29 per cent. during the second, and 20 per cent. during the third. Omitting intermediate years, in which there are slight fluctuations, it is found that during the tenth year the gain is 11 per cent., and for the twentieth year 2.3 per cent. At the age of twenty-three no growth occurs and the increment is 0 per cent.

The explanation of decrease in growth power is found by Dr. Minot in the relative increase in cytoplasm of the body cells. In the young embryo all cells have large nuclei and comparatively small cell bodies, and all cells appear much alike. With differentiation of cells and a growth of the cytoplasm, but not of the nucleus, the cells lose their youthful character and approach the condition recognized in adult life and in old age. It is the large nuclei of the infant and child with which are correlated the growth ability, wonderful muscular activity, and rapid mental development so prominent in the earliest years of life. Altho the adult may have greater mental power because of his wider experience, yet in the ability to do new things the infant greatly excels. A steady decline in mental vigor continues thru childhood, youth, maturity, and age.

Is any one of us capable of beginning at the moment we wake to carry on a new line of thought, a new series of studies, and to keep it up full swing, with unabated pace all day long till we drop asleep? Every baby does that every day.

When we turn to the child who goes to school, behold how much that child has lost! It has difficulties with learning the alphabet. It struggles

[3] Figures of Professor H. H. Donaldson of the Wistar Institute of Anatomy.

slowly through the Latin grammar, painfully with the subject of geometry, and the older it gets the more difficult becomes the achievement of its study.—*Problems of age, growth, and death,* page 243.

Dr. Minot does not attempt to draw a moral to adorn his tale. He refers, merely incidentally, to the desirability of students entering college early and getting into the professions as soon as possible. The experienced teacher will, however, see a perfectly definite application which can be made of the facts and theories which Dr. Minot presents. If it is difficult to learn things in late life, it is surely important to begin early with the various kinds of knowledge. To the present writer no more striking argument of the value of kindergarten, nature study, and manual training has been brought forth. The ordinary school curriculum of the first four grades is such that the child is introduced to the subjects of language, mathematics, and history, while a little later comes geography, but manual dexterity is not cultivated and the great world of science is a *terra incognita.* When we think that the amazing progress of the world during the past two hundred years has been largely in the sciences and their application to everyday life, can we afford to put off until high-school age the study which should make our children excel in these lines?

It is a commonplace of physiology that hand training is really mental training, that the pianist, for example, is one whose cerebellum has been educated. Certainly this particular kind of mental training can be best started with children. No more striking picture has been given of the loss of power to acquire manual dexterity than that of Dr. Minot (pages 243-244):

When golf first came in it was considered an excellent game for the middle-aged; and you have all watched the middle-aged man play. . . . Day after day, the man of forty, fifty, or even older, would go to the golf field hoping each time to acquire a sure stroke, but never really acquiring it. The young men learned better but the good golf players are those who begin as children, twelve and fourteen years of age, and in a few months become as expert and sure as their fathers wisht to become but could not. In bicycling it was the same. Eight lessons was considered the number necessary to teach the intelligent adult to ride a wheel; three for a child of eight; an indefinite number of lessons, ending in failure, for a person of seventy.

The more one considers the foregoing statements the more certain does he become that they speak truths of vital significance to the educational world. If regular school work is to be made most effective it must begin early and must introduce the pupil to as many lines of study as possible. Particularly in the early years must the danger of a one-sided education be avoided. It is then that new ideas are introduced with which the child builds the mental furniture of later life. The present writer would certainly not suggest a cramming process by which Paul Dombeys should be made, but he would submit it as essential that in the early grades there be an attempt to enlarge the world of the child, not to cramp it—to offer at least a glimpse of the things which will be met in everyday life in the years to come.

It is a serious question how to offer those things which the child can best learn in the age period from five to ten. We can not overlook the dangers to eyesight from the reading and writing of modern school life, nor the dangers to general health from confinement in ill-ventilated rooms. But these difficulties can be overcome. Much of manual training can be accomplished out of doors without close use of the eyes. Hours spent in nature study in the meadows or groves, or excursions with the teacher to factories, stores, and mills have an educational value for the very young that is not measured by whole days of book work. To relieve danger of eye strain in the schoolroom large charts may be employed in place of some of the books, and copying from the blackboard may be reduced to a minimum.

For children of the well-to-do nothing is likely to be gained by entering school at the age of six or seven, except in small families where the companionship of other children in school is greatly needed. Wealthy parents can provide their children at home with enough that is new. Most useful will be travel, with summers spent in the country and, if possible, private tutors to give a small amount of formal instruction. Better still would be some study under the direction of the father or mother.

But if formal instruction is omitted from the years when

most children are beginning their school work it will not do to postpone it too long. The ability of the child to acquire regular habits of study must be kept in mind. No desultory pursuit of even the most useful subjects will suffice to give that accuracy of perception and clearness of statement which are fostered by thoro work in some line, as mathematics. It is the business of the educational expert to study fully and sympathetically this subject. There can be no doubt of the great ability in childhood to learn new things. This ability must not be wasted. Those in charge of education should aim to make the most of it.

The idea of the quickness of the child in learning is, of course, not new, but the statement of the case as a part of a report on physiological experiments of growth for many different kinds of animals is highly important. Dr. Minot catalogs mental activity along with physical growth, and he has undoubtedly placed it where it belongs. The rate of bodily growth is highest in infancy, decreasing rapidly at first —more slowly in later life. Nuclei of the body cells are at first large in proportion to the amount of cytoplasm; their relative bulk decreases quickly in the first years, less quickly in after years. But there is no return to the original condition. Bodily activity and mental activity as well, being related to the size of nuclei, show a like decline.

This view of the progress of senescence is most thought-compelling. It is seen that truly "there is no time like the present." At the earliest possible moment consonant with health the child should begin his education, and this should be of such a nature as continually to open up new lines of thought and action. Just when formal schooling should begin is a matter for further study by physiologist and psychologist, but that education in some form should commence very early there seems no doubt.

FRANCIS RAMALEY

UNIVERSITY OF COLORADO

VII

THE CALL TO CITIZENSHIP [1]

Fourteen years ago this Association met for the first time in the city of Denver. It was then my privilege to address the members of the Association as their president, and I chose as my subject a question which was then, and perhaps is still, perplexing the minds of thoughtful teachers everywhere—What knowledge is of most worth? In answer to that far-reaching query I attempted to point out where, in my judgment, standards were to be found with which to make sure test of the relative worth of the knowledges which compete for the attention and the patronage of intelligent men.

Tonight, at the kindly instance of the distinguished gentleman who occupies the chair, I am again permitted to address this great Association, as broad in its sympathies as in its scope, assembled once more in the city of Denver. In the interval much has happened. Many familiar faces have dropt from our ranks, and their spirits have past over to the shores of the undiscovered country. Education has everywhere advanced with giant strides. Schools of every kind have multiplied and important new educational agencies have come into existence. The College Entrance Examination Board and the Carnegie Foundation for the Advancement of Teaching have demonstrated their capacity and effectiveness as standardizing agencies for institutions of secondary and higher education. Vext problems of the program of studies have advanced toward solution. Some dogmas eagerly taught fourteen years ago have lost their power, and new centers of educational interest have been developed. Our nation as a whole has past thru important and quite unexpected developments. Economic distress and economic prosperity have trod upon each other's

[1] An address delivered before the National Education Association at Denver, Colo., July 6, 1909.

heels with startling suddenness. A new political generation has come upon the scene, and it finds itself confronted by new and unfamiliar problems. Strong, virile personalities have contended together in the political arena for public favor and support, while the whole world has lookt on. The war with Spain, which fourteen years ago was unthought of, has past into history, and as its result, peoples and lands at once distant and dependent, have been brought under American rule. The phenomenal growth of industry, transportation, and commerce has put a new face upon many old questions, and has proposed some new ones as well. For these reasons alone, without pausing to add others which at once suggest themselves, the burden of responsibility resting upon American citizenship is today greater than it has been at any earlier time.

Several imposing political antinomies confront us. The natural desire to develop foreign commerce, and to enrich our people thereby, finds itself face to face with the determined purpose to throw the protecting arm of government about domestic industry. The definite wish to attract to our shores the ambitious and the worthy from all the world is held in check by the stubborn weight of the race problem, the roots of which are deep down in the nature of man. The purpose to keep open to every individual all possible avenues of usefulness and all possible opportunities for lawful acquisition, is opposed by the determination not to permit the development under law of great organizations, powerful enough to bend the law to their own purpose and to control the state itself. If fourteen years ago it was natural to discuss the principles which determine educational values, tonight it is equally natural to discuss the principles which underlie and control good citizenship.

The American citizen at the beginning of the twentieth century has something more to do than to face, and if possible to solve, these contemporary problems, complicated and difficult as they are. He has also, and first of all, to preserve and protect those underlying principles of civil and political liberty which were established by the fathers, and which have been handed down to him as the basis on which the whole fabric

of this Republic rests. To fail to solve the problems of today would certainly damage, and perhaps destroy, the fundamental principles of Anglo-Saxon institutions. On the other hand, to solve those problems in ways that antagonize and contradict the great insights of the past two thousand years, which insights have crystallized into forms of liberty and modes of government as familiar and as necessary as the air we breathe, would be not to solve them at all, but only to postpone and to complicate their possible solution.

It is plain, then, that the educational instrumentalities of the country, schools, colleges, and universities alike, have before them here a task which takes precedence of all questions of school organization and management, of programs of study and curriculum, of teachers' salaries and tenure of office, of general *versus* vocational training, of secondary and ancillary questions of every sort—the task, namely, of preparing intelligent American citizens to take up each his own share of the nation's responsibilities.

The unrest which is abroad in the world, and which is found alike in Europe and in America, in the unchanging East as well as in the restless and rapidly-moving West, is in no small part due to the lack of understanding of what is going on in the world and what has gone on hitherto. What one does not understand, first perplexes, then annoys, and finally antagonizes him. It is not true, as some hold, that the world's unrest is traceable in last analysis to physical hunger. Probably there never were so few hungry men as there are today. Civilization may have its faults, but lack of ability to uplift the masses of the population and to offer them opportunity is not one of them. The world has been for more than a hundred years under the spell of abstract principles, admirable in themselves, and yet the world in large measure lacks the ability or the capacity so to organize itself and its business that those principles shall find just and equable expression. Everywhere old beliefs, old traditions, and old customs are giving way before the corroding tooth of time, and as the time-honored creeds, political, social, and religious, lose their hold, others equally controlling and imperative do not come forward to take their place. Immense

masses of men are left, therefore, with almost boundless opportunities for good or evil, but without guiding principles with which to work. This leads to intellectual, political, and moral restlessness.

There are many who feel that the rising generation of Americans is growing up without any proper knowledge of the fundamental principles of American institutions and American government. Because of this lack of knowledge, well-meaning men lend ear quite too readily to demagogs who propose to them all sorts of schemes without any relation, save one of antagonism, to established political principles. From listening to demagogs, it is but a short and easy step to a state of mind in which envy, greed, and hate are elevated to the lofty place which should be occupied by respect and confidence, as well as by political insight, political knowledge, and political experience. The Americans of an earlier day got their training in the fundamental principles of citizenship from the stern facts which faced them. This was the school in which the nation's fathers were educated. During the early part of the nineteenth century the task of nation-building went on apace, and the discussion of fundamental principles was always to the fore in the Congress as well as before the people. Then came the great clash of arms in civil war, and principles were yet turned to for guidance and direction. Men sought even to stay and to turn back the tide of battle with the force of logic.

Today, however, one hears much less of these fundamental principles. There are those among us, some of them in places of responsibility and great influence, who call them outworn, antiquated, obstacles to popular government, and who would substitute the passing desire of today for the carefully wrought design of all time. Men now talk with straight faces of substituting rude and primitive justice for the orderly procedure of law, apparently with no recognition of the fact that this substitution means to plunge man and his highest interests back into barbarism, and to reestablish the time when might made right. The courts are attacked as usurpers of an authority which the people themselves have given them for the

people's own protection. The carefully built guards which have been put about individual rights and liberties are denounced as fortresses of privilege by those who seek privileges for themselves at the expense of the rights of others.

There are only two really deep-seated and influential enemies of human happiness and human order, ignorance and selfishness. These do pretty much all the damage that is done in the world, and they are the always present obstacles to improving the condition of mankind. It is the province of intellectual education to address itself to the first of these, and it is the task of moral education to deal with the other. If men's eyes could only be really opened to an understanding of how the civilization of the world has been won; if they could be brought to see the significance of each step, taken however long ago, on the upward path of man's development; if they could recognize that the perplexities of today are due chiefly, if not entirely, to lack of adjustment between the ruling principles which are at work in human life and the circumstances of the moment, and not to the imperfection or unwisdom of those principles, they would be able to pass juster and wiser judgments upon the questions submitted for arbitrament to them as citizens. If men could only be led to appreciate the distinction between selfishness and selfhood; to see the richness and fulness of nature which come from service; and to realize that the highest expression and the greatest conquest which a human personality can attain is thru finding its ideals and its satisfactions in promoting the happiness and the interests of its kind, the task of government would be easy indeed.

In all parts of the world there are those who feel this so strongly that, in order to gain what seems to them to be a desirable end for the whole body politic, they would strike at the roots of human individuality and deprive it of the favoring soil in which alone it can grow. If they were to succeed in this endeavor, they would not mend matters at all. On the contrary, they would make them worse. It is not less individuality that we need, but fewer self-centered individuals. It is not less private property that we need, but private property

more widely distributed and fewer men who treat their hoards as misers rather than as trustees. Human individuality and personality will blossom anew and more richly if planted in the garden of service.

If one, seeking to know the story of civilization, casts his eye back over the pages of recorded history, he will find that the record of progress can be written in a single sentence. It is the development of liberty under law. Liberty and law are the two words upon whose true and faithful exposition all training for citizenship must rest. He who truly understands the meaning of liberty and the meaning of law, and the relation of one to the other, is ready to face his full duty as an American citizen.

It is a sorry travesty upon the serious business of training for citizenship, that it should be thought that we can make citizens by teaching the external facts relating to the machinery of government alone. A knowledge of how government works in this and other lands is highly important and of course helpful. But this knowledge may be minute and complete and yet be unaccompanied with any real grip on the principles that vitalize free government everywhere.

An admirable book for training in the fundamentals of citizenship could be written in three parts: the first to deal with, to describe, and to illustrate the conception of Liberty; the second, to deal with, to describe, and to illustrate the conception of Law; and the third, to outline in simple fashion the agencies which the American people have created in order that Liberty and Law may strengthen each other.

Liberty is the freedom from all restraints but those which the lawful rights of others impose. Liberty, therefore, attaches to man as a social and political animal. It relates to his conduct and opportunities as a member of a body politic. Liberty contradicts and denies license just as completely as it contradicts and denies tyranny. To escape from restraints other than those imposed by the lawful rights of others, men have made every conceivable sacrifice. To be permitted to hold opinions of one's own choosing, to pursue the calling of one's own preference, to move about as inclination and oppor-

tunity may lead, to retain as one's own possession the rewards of one's labor and skill, are inseparable from liberty. The free man, therefore, lives surrounded by both opportunities and limitations. The opportunities are an invitation to the exercise of his own capacities; the limitations are the just opportunities and privileges of others. It is one of the paradoxes and marvels of human nature that man grows in power and in grace as he lives and works with others who have the same privileges and opportunities as himself. As he rises superior to these limitations and thru sacrifice overcomes them and turns them into elements of strength and power for himself, he grows in individuality and in usefulness as a citizen.

It is law which imposes the limitations that are characteristic of liberty. Law is nothing more nor less than the system or collection of principles and rules of human government in their application to property and conduct, which are enforced by a sovereign political authority. Laws themselves change but the principles underlying the existence of law do not, and can not, change unless society and civilization are to be destroyed. They are the long and painful product of evolution operating in the field of human conduct and human affairs. The really intelligent man regards the tried and tested products of time with high respect; the anarchist would destroy them at one blow for the pleasure of returning to chaos. It is of high importance to teach that law is not caprice, that it is not tyranny, that it is not limited in its application. It is the sovereign people themselves who speak by the mouthpiece of the law, and the institutions and agencies which have been created for the exposition and enforcement of law are the people's own institutions and agencies. It is a noteworthy and singular characteristic of our American government that the Constitution provides a means for protecting individual liberty from invasion by the powers of government itself, as well as from invasion by others more powerful and less scrupulous than ourselves. The principles underlying our civil and political liberty are indelibly written into the Constitution of the United States, and the nation's courts are instituted for their protection. We Americans are thus in possession of an appa-

ratus unlike anything which exists elsewhere in the world to protect the principles of liberty, and it is to this more than to any other single cause that we owe the stupendous strides of the past one hundred and twenty-five years.

An intelligent citizenship, which is also good citizenship, implies, however, much more than a knowledge of fundamental principles, indispensable as that knowledge is. Good citizenship implies a habit of will by which the individual instinctively conforms his action in concrete cases to the abstract principles in which he professes belief. It is curious how many men feel that the rule of sound principle is excellent for the conduct of others, but that it should be suspended or at least relaxed in their own case when some material advantage is to be had. It is a long time since clever men first began to devise ways and means of making the worse appear the better reason, and human ingenuity has not yet exhausted itself by any means. Madame Roland's heart-breaking cry from the scaffold " O! Liberty, how many crimes are committed in thy name," is still ringing in the world's ears. We must be careful, then, not to confuse the names Liberty and Law with the facts. We must not permit ourselves to be misled by appearances, but rather insist upon digging down to the bed-rock of underlying principle in order to determine our attitude toward a specific political or social problem.

It is curious, too, how ready men are to condemn in their contemporaries the qualities which they profess most to admire in their ancestors. What was the determined purpose of long ago becomes narrow-mindedness and stubbornness when exhibited today. The lofty idealism of some great prophet of the race which has been celebrated in song and story for centuries, passes into the vagaries of a dreamer and the outgivings of an unpractical mind, when we find it looking us in the face. This power of self-deception keeps many of the worst citizens from realizing that they fall short of perfection in any degree. They go thru all the forms and recite all the formulas of the creed of respectability and of duty. They dole out a little something to charity now and then, with quite the air of a martyr going to the stake for his beliefs. What more can be

asked of them? The answer is instant and imperative: Make some show of genuine human feeling. Give some expression of honest human sympathy. Offer some real sacrifice for the common interest and the common good. Dwell upon something other than one's own physical comfort and material welfare, and lend a hearty hand to the huge task of making more human beings intelligent, property-holding, and free from the harassing and in large part unnecessary cares which now torment them. If the decent men and women of America would begin tomorrow to do the things which their private beliefs and their public professions require, the sum-total of the world's comfort and happiness would be marvelously increased before sunset. It can not too often be repeated that the problem of human betterment is not a problem of revolution. It is not a problem whose solution involves cutting loose from all that has gone before, or one which compels radical readjustment of accustomed legislation. It is simply and solely a matter of individual self-betterment. Individual men and women are not going to be made over by the spread of some philosophy as to how under other auspices or in other worlds than ours the race might have been happier and more comfortable. Society as a whole is nothing more nor less than the sum-total of the individuals who compose it. It has no separate metaphysical entity, nor is it some strange and alien thing of which individual citizens know nothing and form no part. Individual men and women are society. They are the state. To it their highest allegiance is due. No church, no party, no union, no lodge, may interpose its interest or its ties between the state and the highest duty of the citizen with impunity, or without tending to overthrow the social order and to substitute the hatefulness of class feeling for the glory of patriotism. If men's standards of action be raised, if their citizenship be real, sincere, and vital, then society is already reformed. Nothing else remains to be done.

In one of his well-known essays, Macaulay makes the statement that no compositions have ever been produced in the world that are equally perfect in their kind with the great Athenian orations. He adds the striking suggestion that

genius is subject to the same laws which regulate the production of cotton and molasses. The supply adjusts itself to the demand. The quantity may be diminished by restrictions and multiplied by bounties. To the influence which oratory exerted at Athens, Macaulay attributes the singular excellence to which eloquence attained there. Why should not good citizenship rise to heights here in America equal to those which oratory and eloquence occupied at Athens? Macaulay may be right. Let us put a bounty on good citizenship by giving to it great influence; by rendering it high honor; and by holding it in incomparable esteem. Let these standards be set early in the home and in the school. Teach young children who the real heroes of our Republic are. Show them with clear illumination the underlying principles on which the nation is built, and tell the story of how mankind discovered those principles and wrought them into political institutions. Do not permit the problems of today to become separated from the problems and principles of yesterday. Make it plain that the story of our political evolution is continuous and that what exists and perplexes now is the natural and necessary product of all that has gone before, and will, in turn, condition and determine what is to follow after. Before all else, keep the inspiring maxim, Liberty under law, before every American child, and as he grows in power of appreciation see that he understands what it means and involves.

The *Institutes* of Justinian, which have shaped the law of Europe for nearly fifteen hundred years, open in sonorous Latin with the sentence which rendered into our tongue reads, "Justice is the constant and perpetual wish to render every one his due." Justice, then, is a habit of will; a habit of will not on the part of an individual sovereign, or of a high officer sitting in state, but a habit of will on the part of every individual who claims and receives the rights and privileges of a citizen. The will to render every one his due means that the rich, the powerful, and the successful are to have their due accorded to them without grudging and without envy, just as the poor, the unimportant, and the struggling are to have their due in fullest measure without oppression or exploitation. It is easy to be

just when it costs nothing. The test of one's essential justice of mind and will comes when personal interest, personal prejudice, or personal passion stands in the way of its exercise. The perpetuation of democracy depends upon the existence in the people of that habit of will which is justice. Liberty under law is the process for attaining justice which has thus far been most successful among civilized men. The call to citizenship is a call to the exercise of liberty under law; a call to the limitation of liberty by law; and a call to the pursuit of justice, not only for one's self, but for others.

For inspiration to an understanding of American citizenship let teacher and student alike turn to the great oration of Daniel Webster delivered at Plymouth, Massachusetts, on December 22, 1820, to commemorate the first settlement of New England. The reader who follows this remarkable exposition of the meaning of republican institutions as Americans had framed them, will understand the feeling of John Adams when he wrote: "This oration will be read five hundred years hence with as much rapture as it was heard. It ought to be read at the end of every century, and indeed at the end of every year, for ever and ever."

Those glowing words are the judgment of one of the nation's fathers upon the meaning of the call to American citizenship. What is to be the judgment of those who are now the nation's children?

NICHOLAS MURRAY BUTLER

COLUMBIA UNIVERSITY

VIII

CURRENT EDUCATIONAL PUBLICATIONS[1]

Aguayo, Alfredo M. La pedagogia en las universidades. Habana, Imprenta Avisador Comercial, 1909. 18p. 8°.

Allen, J. W. The place of history in education. Edinburgh and London, W. Blackwood and Sons, 1909. 258p. 12°.

> Assuming that a system of education can be based only on agreement as to values, the author, who is Hulsean professor of modern history at Bedford college, University of London, discusses the place of history in a hypothetical system founded on a basis of agreement below all controversies. The book is readable and suggestive.

Betts, George H. The distribution and functions of mental imagery. New York, Teachers College, Columbia university, 1909. 99p. 8°. (Teachers college, Columbia university, Contributions to education, no. 26)

Cole, Percival R. Later Roman education in Ausonius, Capella and the Theodosian code; with translations and commentary. New York, Teachers college, Columbia university, 1909. 39p. 8°. (Teachers college, Columbia university, Contributions to education, no. 27)

Congrès international d'enseignement ménager. Fribourg, les 29 et 30 Septembre 1908. Second volume. Compte rendu des séances. Fribourg, Suisse [Office international de l'enseignement ménager] 1909. 320p. 8°.

Congresso nazionale dei capi d'istituto. 2d, Rome, 1908. Atti. La riforma della scuola media. Roma, Amministrazione della Rivista pedagogica, 1909. 186p. 8°. (Supplemento della Rivista pedagogica, anno ii, fasc. v)

Dewey, Henry B., *ed.* History of education in Washington. Preliminary edition issued for distribution at the A.-Y.-P. exposition. Olympia, Wash., E. L. Boardman, public printer, 1909. 83p. 8°.

Dudley, Gertrude *and* **Kellor, Frances A.** Athletic games in the education of women. New York, H. Holt and company, 1909. 268p. 12°.

Dugas, L. Le problème de l'éducation; essai de solution par la critique des doctrines pédagogiques. Paris, F. Alcan, 1909. 344p. 8°.

[1] Compiled by John D. Wolcott, Acting Librarian of the United States Bureau of Education, to which books and pamphlets should be sent for inclusion in this record.

Eaton, Ethel Mason. Kindergartens in the public schools. New York city, The Public education association [1909] 24p. 24°.

Elson, William H., *Superintendent of schools.* Preliminary report on simplified course of study, Cleveland public schools. Cleveland, Board of education, 1909. 40p. 8°.

Contains development of course of study since 1836, status of present course as compared with earlier conditions and other cities, opinions of representative citizens and elementary school principals; simplification by elimination of studies, by selection of topics, by revaluation, and by correlation; conclusions and recommendations.

Formiggini-Santamaria, E. L'istruzione popolare nello stato pontificio (1824-1870). Bologna, Modena, A. F. Formiggini, 1909. 288p. 8°.

Frere, Margaret. Children's care committees; how to work them in public elementary schools. London, E. S. King and son, 1909. 86p. 12°.

"The purpose of this handbook is to help local managers, and more particularly women managers, of elementary schools in carrying out the social and charitable, as distinct from the official work, which awaits them in these schools."

Gaudig, Hugo. Didaktische präludien. Leipzig und Berlin, B. G. Teubner, 1909. 272p. 8°.

International congress for the development of drawing and art teaching. 3d, London, 1908. The transactions of the Congress; ed. by C. Myles Mathews. [London] Offices of the Congress [1909] 593p. 8°.

Kikuchi, Dairoku, *Baron.* Japanese education. Lectures delivered in the University of London. London, J. Murray, 1909. 397p. 8°.

Embodies the substance of two courses given in 1907, one on Japanese educational administration and one on Japanese education, especially elementary and secondary from the pedagogic point of view. The entire material has been recast and merged, and some important recent changes in elementary and normal education noted.

Kirkpatrick, Edwin A., *ed.* Studies in development and learning; contributions from the department of psychology and child study in the Fitchburg normal school, made by the advanced class of 1907. New York, The Science press, 1909. 101p. 8°.

Laurie, Simon S. Institutes of education; comprising an introduction to rational psychology. 3d ed. New York, The Macmillan company, 1909. 391p. 8°.

"This volume contains my class lectures after frequent revision and condensations. It is the third edition, but the changes on the second edition are merely verbal."—Pref. note.

Mackenzie, John Stuart *and* **Mackenzie, Millicent.** Moral education: the task of the teacher; the training of the teacher. [London, Moral education league, 1909] 30p. 8°.
Reprinted from the International journal of ethics, July 1909.

The secretary of the Moral education league, Mr. Harrold Johnson, knows of no more adequate statemen of its position than that contained in this paper of its president, Prof. J. S. Mackenzie.

National congress of mothers. How to organize parents' associations or mothers' circles in public schools, with suggestions for programs. [n. p.] National congress of mothers, 1909. 40p. 24°.

National education association. Proceedings of the Department of superintendence at the annual meeting held at Chicago, Ill., February 23, 24, 25, 1909. [Chicago] Pub. by the Association, 1909. 187p. 8°.

Newman, Carrie S. The kindergarten in the home; a book for parents and for all interested in child-training. Boston, L. C. Page & company, 1909. 259p. 12°.

Pritchett, Henry S. The twentieth century type of education. Hampton, Va., The Institute press, 1909. 8p. 8°.

A commencement address at Hampton institute, delivered May 23, 1909. Reprinted from the Southern workman. Gives as the motto of the eighteenth century school and university "I believe;" of the nineteenth century school and university, "I believe, but I think;" of the twentieth century school, "I believe and I think, in order that I may work."

Sandison, Howard. The problem of method. Terre Haute, The Moore-Langen printing company, 1909. 442p. 8°.

"In this volume it is the intention to consider method as essentially the psychological process of the pupil in obtaining possession of the subject-matter."—Pref. to first ed.

Upham, Alfred H. Old Miami, the Yale of the early West. Hamilton, O., The Republican publishing co., 1909. 274p. 8°.

Virginia. University. Rural life conference. Addresses delivered at the University of Virginia summer school in connection with the Conference for the study of the problems of rural life, July 13 to 16, 1909. [Charlottesville, Va., The Michie company, printers, 1909] 98p. 8°.

Willmann, Otto. Aristoteles als pädagog und didaktiker. Berlin, Reuther & Reichard, 1909. 216p. 8°. (Die grossen erzieher; ihre persönlichkeit und ihre systeme, hrsg. von R. Lehmann, 2. bd.)

IX

DISCUSSION

THE INEFFICIENCY OF MODERN SCHOOLS

A REPLY

In the March number of the *North American review* a call was sounded by Harold E. Gorst, urging an educational reform; a plea was made for specialization instead of general education; it was urged that since the welfare of a nation depends upon the education of its youth, the children should have the best education attainable, and that that education should be along those particular lines which interest the children most. Mr. Gorst's article gives the impression that to specialize from the very beginning of a child's education is the ideal way to do; we are to believe that the educational system should be so changed that there should be great bureaus established at which the little tots should be subjected to examination to find out what the bents of their minds are, and whether their inclinations would lead them to be mechanics, authors, farmers, civil engineers. After the officials in charge had past upon each case, the children should be sent to various schools—or, rather, "workshops"—where, from the very beginning, they might have such training as would fit them for their life work.

We grant that there is something the matter with the modern school, but is the theory advanced by Mr. Gorst the solution of the difficulty? If children should start their education in such preliminary technical schools, and if they should specialize from their youth up, how broad-minded would they be when they had completed their education? They might all be master bricklayers, or master lawyers, they might be experts in their own professions and trades, but they would have nothing in common with the rest of mankind and would, of necessity, be but fine machines capable of doing efficient work

and nothing more; the members of the different trades would be compelled to associate only with members of their own guilds, and that would be ruinous to society. It is hard to say in what a state society would be if the preliminary technical school idea were carried out. The love in the home is one of the redeeming feelings in this weary old world, and the admiration or adoration of the children is one of the greatest and best of the home loves. If babies would begin to prepare for their life work there could be no childhood and, if there would be no childhood, there could not be the happy home life God intended for man. But it seems useless to discuss the scheme of specialization in the elementary schools, for even the theory seems impracticable. Experts would be required to pass upon the cases of the little children in order to decide in what field the labors of each one should be directed and expended. It can easily be seen that such a great number of experts as would be required could not be found. For instance, consider the country districts. The country children have as much right to advantages as city children have, yet it is a patent impossibility to provide the expert examiners to examine the children of every country district. Even if the offices in central positions were opened, the state of the finances of the common people would preclude the possibility of the children being taken there for examination. The common school system of today offers a common education to all the children. The system of specializing would affect only a favored few. But, even if the great examining offices could be opened, the system would be impracticable since, in the country districts, special department schools would be an absolute impossibility. Even tho the children might be able to go for examination to nearby cities, they could not go regularly to school there. They could not travel back and forth, and they could not board in town. Only city children, and, of those, only ones of means, could go to the schools. For America, then, at least that system is impracticable since the Americans stand for an equal chance for every one.

But, altho the system suggested seems useless, we must offer a better substitute for it, since we, too, have lamented the fact

that the schools of today are not what they ought to be. We contend that the system now in practise is admirable, but that the instruments by which it is operated are not of the best. By the present system all children are offered—yes, are compelled to accept—a free education, and in the unfolding time of their natures their minds develop with their bodies. In order that the minds of children develop naturally, they should be developed broadly at first, instead of starting in at the beginning to specialize. Nature is, after all, pretty wise, and we might well pattern after her when we seek means for developing the mind. In the beginning of the development of the body of a child, one part does not grow to perfection alone, but all organs and members develop gradually together. A child who is destined to become a great optician or astronomer does not develop from the beginning a strong, piercing eye; a youth who will one day become a successful farmer is not in youth a paragon of brawn. Nature develops the different parts of a child's body simultaneously, gives him sturdy arms, clear eyes, a strong heart, good lungs, all at the same time. Should not the mind grow broad, study mathematics, languages, history, geography before it commences to specialize? Specialization may be all right in its place, but its place does not seem to be in the elementary schools.

On the other hand, the public school system seems an ideal theory. The main trouble with the educational system seems to be the low standard which it has for its instruments, that is, for its teachers. If the criterion for instructors were higher, naturally the instruction would be more worthy, the student would be better prepared, and there would be more who would be enough interested to complete their educations. Many teachers, even in the first-class high schools, seem to have lost sight of the fundamental reason for teaching. They seem to imagine that they are placed in the schools that they may find out how little or how much the pupils know. The question and answer method of conducting recitations is used nowadays, to determine a child's class standing in order that proper grades may be given. Grades are a good thing in so far as they show a student where his weak points are, or en-

courage him to continue if he already be doing good work. But the plan of grading is wrong in so far as it is the end for which student and teacher hold recitations. The real reason for having teachers in charge of schools is that they, by their greater knowledge, may guide the thought of the pupils along the proper channels, and shall supplement and impress upon the student the things they learn from their books. The proper function of the Socratic method of recitation is to enforce what is said in the texts, and to encourage originality and individual thought by drawing out the impressions and opinions of the pupils thru questions. The teacher should seek to develop mind instead of memory.

In order to accomplish the desired effect, the students, in the first place, must be interested in their studies. It is an obvious fact that when one is interested in a subject he can do more efficient work than he can when the particular branch of study is compulsory. A professor once said that the reason many people find the higher branches distasteful or even positively difficult is because the foundation work has not been well done. The fault lies at the door of both teacher and student, but the greater blame belongs to the teacher. Children enter school wide-eyed and expectant; the things told them are marvelous, and one new wonder after the other is unfolded before them; they are exultant when they are able to spell "cat" or "mat," and exuberant when they can figure out that $2+10=12$. In other words, the new learning is presented attractively. But, a little farther on, when the children enter the grammar grades, we hear them complain of hard lessons, which are so uninteresting. Going to the root of the matter, we find that the teachers assign the lessons as tasks, not as interesting research or investigation, which makes them naturally irksome. Too often the teacher is the taskmaster, instead of being the co-student with the pupil. It is no wonder that the school-teacher is looked upon as the cross and crabbed old maid, gaunt and thin, with stern spectacled eyes. It is no wonder that so many children hate school and drop out as soon as they have reached the age limit. It can bear repetition, then, that a higher standard for teachers to measure up to should be set up, and that all

teachers should be required to pass as rigid an examination in pedagogy as in mathematics, or any other study, and should be well able to present learning to the pupils in an interesting way.

One of the serious mistakes made by teachers is due to their faulty ideas of discipline. Some teachers make their pupils antagonistic to them, and thus ruin all chances of being useful to them. Discipline, engendered by respect for a teacher, spontaneous and involuntary, is essential; but tyranny too often replaces the bearing of a teacher which demands respect, and is rewarded by good discipline. Not only in the matter of keeping strict order are some teachers tyrants, but tyranny is often very noticeable in the matter of tests and examinations. Tests are excellent in many cases. It is the way in which they are announced and spoken of that raises the objection. A class is often told that an examination will count half of the term grade, and that a flunk will pull the grade down wofully. Such threats are behind cramming. No discussion need be given why cramming is injurious. The fact that cramming is useless and often positively detrimental, has often been proven. Is it then necessary to urge that examinations be given merely for the purpose of review, with nothing said about the grade? Is it necessary to emphasize the fact that the student and the teacher should be co-students together, and that school work should be so conducted that children find it a pleasure, not a task? If such progress were made there would be more people complete their educations, and instead of there being many pupils there would be an increased percentage of students among those who go to school.

The common fallacy in the present theory of education could not be rectified by schools for specialization, since from the social and the financial standpoints such schools would be impracticable and, in the light of common sense, we must deem them out of accord with Nature, the all-wise teacher. The fallacy is the teacher's conception of duty, and improvement is needed in the preparation, first, of the teachers themselves. They must recognize that their duty is to guide their pupils in their pursuit of knowledge, and that their questioning must be, not to ascertain the degree of knowledge to which their

pupils have attained, but to draw out the impressions already in the minds of the students, as well as to suggest new lines of thought for research and investigation. The school should be a place in which originality and individuality should be developed. The teacher should not adhere so closely to the text that the pupils have no liberty in giving vent to their own ideas upon the subjects discust. If a student figures a subject out for himself, he will know much more about it than he will if he merely learn it from a book. If opportunity be given for classroom discussion the student will learn self-appreciation and self-reliance. The good teacher dare not hold the students down too closely to the text or to rigid discipline; he must give freedom and make the work interesting; he must not be a taskmaster, but a student with the students, and all his methods must be conducive to interesting his pupils.

The keynote of successful education of the masses is, then, education of those who are to teach. The teacher's education must embrace the branches to be taught and, in particular, pedagogy and effective methods of presenting learning. Such a change in the educational system will be more beneficial than the substitution of special schools would be, and would make school life a pleasure for children, would increase the desire to give expression to personal thought and investigation, and would strengthen the personality and individuality of the students, giving them self-appreciation and self-reliance. Men are but thinking animals, and the sooner one learns to think originally, and be self-reliant in his thinking, the sooner he rises from the level of mere creatures and attains the place of Man. Surely, this evolution of men from creatures is the function of school, and, since it is so important, it makes good schools under good teachers imperative.

MARGARET BROWN MOORE

UNIVERSITY OF WOOSTER
WOOSTER, O.

X

REVIEWS

Principles of logic—By GEORGE HAYWARD JOYCE. New York: Longmans, Green & Co., 1908. xx+429 p. 6s. 6d.

This book is another of the many excellent ones that have come from Stonyhurst, issued, it seems fair to presume, with the purpose both of supplying textbooks to those of the English tongue who hold to neo-scholasticism, and also of vindicating the point of view of this minority before the larger part of us who have opposing views. If any there be who do not admit this vindication as a fact accomplished, certainly none can deny the value of the series not only as affording an able and sympathetic introduction to scholasticism, but also as showing how scholasticism, in the form now frequently called neo-scholasticism, looks at present-day thought and method.

Perhaps none of the Stonyhurst books more thoroly answers to the purposes suggested than does the book of Professor Joyce's under review. As a textbook in logic for students in those schools which adhere to neo-scholasticism the book seems exceedingly well adapted. In fact, it were much to be wisht that those who seek their logical theory along other lines could have the advantages of such perfection of system and such clearness of representation as characterize this book. Whatever the opponents of scholasticism may urge against that system, it must be admitted that the successive efforts of so many able men working along so nearly the same line, have produced a system of thought wonderfully coherent in its parts and wonderfully clear in its statement.

If the reader will compare Professor Joyce's treatment of any of the traditional topics with that to be found in our "standard" treatises, he will, I think, readily admit the superiority of the former in the respects indicated. Contrast, for example, Joyce's treatment of definition with Mill's.

When Mill's two discussions (in widely separate parts of his book) are read for the first time, diffuseness, if not haziness, is likely enough the resulting impression. With Joyce, on the other hand, one feels delight in reading such crisp and clear-cut statements fitting in so inevitably with all that has preceded.

The list of topics in Professor Joyce's book is much the same as one finds in the customary book on inductive and deductive logic; Part I gives the traditional formal logic, while Part II treats of "applied logic, or the method of science." In Part I appears much the same method of treatment to be found in any book on formal logic, and yet there is a fundamental line of cleavage distinctly visible in many of the topics; for the author holds, consistently enough, that "it is impossible to deal with logical questions save in connection with definite metaphysical and epistemological principles."

Whether it is possible for neo-scholasticism to give adequate treatment to the "method of science" is an inquiry that belongs elsewhere; but this part of Professor Joyce's book seems to the reviewer the least satisfactory. The criticisms made above upon non-Catholic writers on logic as to their (alleged) comparative lack of coherency of system and precision in presentation apply with equal force, on the whole, to Professor Joyce's treatment of the more modern topics. And some unsympathetic readers will likely add the more serious criticism (if true), that there is in the discussion of these modern topics a (real or fancied) lack of spontaneity, at least; while some will doubtless conclude that modern scientific methods and results fit hardly into the scheme of neo-scholastic logic.

As a specimen of bookwriting and of bookmaking, this textbook deserves high praise; author and publisher alike are to be commended. The type and paper are excellent, and the proofreading has been done with unusual care. Appended to the book is a valuable collection of questions on logic taken from recent examinations. A good index completes the whole.

W. H. KILPATRICK

TEACHERS COLLEGE
COLUMBIA UNIVERSITY

Einleitung in die akademische Pädadogik—Von HANS SCHMIDKUNZ. Halle a|S.: Verlag der Buchhandlung des Waisenhauses, 1908. M3.

The title and contents of this volume remind us that in Germany as well as in America the question of systematic teaching in college and university arouses a deep interest. The necessity of teaching ability in the lower schools is everywhere recognized; and, in the elementary school system especially, it has achieved great results. For the secondary school its need is fully admitted; the supreme value of pedagogic training, when superimposed upon excellent attainment in subject-matter, has so firmly imprest Germany that it has developed a unique system of gymnasial seminaries in which small groups of candidates are initiated by expert teachers into the practise of their profession. We in America appreciate and admit the need, but have not yet developed the method for our secondary teachers.

Beyond, in the realm of college work, there has been no attempt to require standards of pedagogic ability, and yet it is conceded that because of the neglect or contempt of pedagogic precepts much of our college instruction lacks effectiveness. It is idle to raise an issue between capacity for creative work and capacity to impart successfully. They are not antagonistic to each other, but they are, of course, not necessarily coincident.

If it is the highest aim of the teacher at college or elsewhere "to transfer his intellectual attainments to others," then, whether he is teaching lads of fourteen or young men of twenty or twenty-two, he must give attention to the methods that make the transfer effective. There is a science of pedagogics that applies to academic work; it makes for clearness of presentation, for precise formulation of purpose, for the same essentials, in short, that are recognized in the earlier school stages.

We are all aware of the prejudice among college instructors against the pedagogy of the schools; they resent the possible confusion of their methods (?) with those of "the mechanicals," the schoolmasters, and yet the glory of academic pursuits will not be tarnished by a knowledge of teaching method, or teaching routine.

A very remarkable contribution to this important question is the above-mentioned book of Schmidkunz; it will grow into the profound appreciation of the serious reader; it can not be read hastily, for the style is by no means attractive, but it is animated by a tremendous earnestness, and its conclusions will eventually win, I believe, acceptance. The affiliations of Schmidkunz may serve to indicate "Wess Geistes Kind er sei"; he applies to the whole field of academic teaching the motto of his friend and master Ernst Bernheim in the latter's *Lehrbuch der historischen Methode,* "brilliancy without method is no less injurious to true science than method without brilliancy." But it would do scant justice to this splendid book to regard it simply as a guide to teaching efficiency in college and university; incidentally it is that in its many valuable suggestions, but it is above all an introduction into a new field of scientific research. Schmidkunz demonstrates beyond question that there is a science of academic pedagogy, and his primary interest centers in establishing its principles, the theory of a pedagogy of the sciences and arts.

To develop his arguments would transcend the limits of a review, but our present purpose is simply to indicate, even tho faintly, their range. "The sciences and arts can not be cultivated in their fullest sense unless they are handed down to new interpreters"; there is a tradition of scholarly advance binding the successive generations to each other (p. 37), and this tradition is not passive, "it contains within itself a tendency, a craving for greater perfection." Moreover, "the aim of academic pedagogy is not to train merely in scientific proficiency nor for a profession, but for a calling, a vocation" (*Beruf* being both broader and more ideal than *Fach*). The university professor hands down not the sum total of his science, but within a circumscribed sphere the sum total of its *methods,* and yet "the exclusive cultivation of method is impossible, for method must attach itself to some subject-matter in the science under consideration" (p. 87). Hence he calls for the exhaustive study of method in a typical *segment* of a given field of learning, after there has preceded

an encyclopedic summary of the whole field. And because the realms of knowledge are interrelated he demands such surveys of sciences, in the last instance an encyclopedic course of science as a whole, which for convenience's sake may be divided into one course "der Geisteswissenschaften," and another of the natural sciences.

We all appreciate the danger of superficial generalizations in such courses, but a teacher of truly philosophical mind and breadth of view could effectually counteract in such a course the narrowing tendencies of overspecialization. Is it not most desirable that our academic youths should occasionally look beyond the confines of their immediate Fach to its place in the larger cycle of human knowledge? May such an encyclopedic course not serve to correct at times a premature choice of a special field of investigation and lead to a spiritually more congenial line of inquiry? The consciousness of just such a need has found some expression in the recent series of non-technical lectures in Columbia University.

From the volume under consideration we may gather other valuable hints; Schmidkunz rejects the assumption prevalent in Germany that academic pedagogy offers only the two alternatives of the lecture course and the practise course (seminary or practicum) (p. 81). Notwithstanding the greater maturity of the student body the final success of all academic work hinges upon the reaction it calls forth in the student. The subject-matter imparted must 1. touch the student, and, 2. affect him spiritually. Evidently in Germany, as elsewhere, there is cause for the complaint; "much is taught, little is learned; incomplete grasp of subject-matter necessitates cram in place of genuine study" (p. 81). Hence he gives great prominence to the personal and conscientious *advice* of the teacher to the individual student; he develops four stages of the academic relations between the teacher and student; in the advisory stage the giver (the teacher) is most active, the recipient (the student), most passive; in the lecture scheme the former's personal activity diminishes as does the student's passivity; in the seminary and practicum the teacher diminishes still further his active participation in favor of the stu-

dent's steadily growing activity; the fourth stage, that of the student's private personal study, represents the goal of academic teaching, the adoption by the student of the scientific method toward which he has been led.

A word may be in place in regard to the advisory function on which Schmidkunz repeatedly dwells. In view of the aimlessness in the choice of lectures which operates against the success of many a student in Germany, as the free elective system is apt to do with us, he feels justified in attaching the greatest importance to this function of the academic teacher. Mere perfunctory advice is fraught with danger; every young man will benefit by the personal suggestion that the enlarged human experience and special scientific insight of the teacher can offer, but because of the weight that attaches to such advice it should be administered with extreme conscientiousness; a hasty or superficial suggestion may mar the successful advance of a youth; human sympathy becomes at least as potent a factor as scientific capacity in the wise exercise of this duty. "Advice that recognizes the freedom of the will is the highest form of correcting control" (p. 85), and again, "well-timed advice will not rob the student of independence, but lead up to it" (p. 125).

One is tempted to quote quite as liberally from the sections that discuss the method of the lecture and the conduct of seminary work. Schmidkunz believes in the lecture; he refutes the charge that it may easily be replaced by a good textbook. "The sound lecture course will always be in advance of the latest publication, it reflects the constantly creative interest of the lecturer; by its technique, by the occasional introduction of the question-and-answer method, by the stimulus to discussion that it may furnish, it enlists the intellectual cooperation of the student." To teach in place of results the growth of results (Schleiermacher's conception) is the special province of the university lecturer.

At the university, as in the secondary school, he attaches to repetition a value which is not always completely appreciated, not mere verbal repetition, but modified repetition from a new angle of vision; this it is that secures definiteness of insight;

the curve of forgetfulness, as we all know, is by no means limited to the lower schools.

To sum up, pedagogy is more than a skilful guidance of immature boys and girls. The college and university student is in the best sense still a *παῖς*, and the art of advancing him to the proper use of his powers is worthy of the thought of the most advanced master in his science.

JULIUS SACHS

TEACHERS' COLLEGE
COLUMBIA UNIVERSITY

A much more than usually profound study of taxation is found in *The methods of taxation* by David MacGregor Means. The author's treatment of this vitally important subject is not only based upon a wide knowledge of economic processes and literature, but also an acquaintance with actual political conditions. The book demands and deserves serious study. (New York: Dodd, Mead & Co., 1909. 380 p. $2.50 net.)

The never old *Agricola* of Tacitus has been edited by Professor Duane R. Stuart of Princeton with a useful introduction and notes. It is a pity that on purely stylistic grounds the *Germania* and *Agricola* of Tacitus are not more read than is now the case. (New York: The Macmillan Co., 1909. 111 p. 40c.)

Professor Alden's *Introduction to poetry* is a careful and sound bit of literary exposition and criticism. It contains ample material for discussion in class or seminar, and is thoroly well arranged. (New York: Henry Holt & Co., 1909. 370 p. $1.25.)

An interesting contribution to American educational history is contained in Dr. Harlan Updegraff's *Origin of the moving school in Massachusetts.* The ground covered by Dr. Updegraff is very little known, and he sets out in attractive fashion the educational as well as the social and political aspects of his topic. (Teachers College, Columbia University, New York: 1908. 195 p. $1.00.)

Greek architecture by Professor Allan Marquand of Prince-

ton is at once a textbook and a book of reference. The illustrations are unusually good. (New York: The Macmillan Co., 1909. 424 p. $2.25.)

A useful book for supplementary reading on the part of students of American history is *Romance of American expansion* by H. Addington Bruce. (New York: Moffat, Yard & Co., 1909. 244 p. $1.75.)

President King of Oberlin College continues to contribute thoughtful and stimulating essays on subjects of high importance. We welcome his latest volume, entitled *The laws of friendship.* (New York: The Macmillan Co., 1909. 159 p. $1.25.)

Under the editorship of Professor Nielson of Harvard, there has been prepared a collection entitled *English and Scottish popular ballads.* The annotations are scholarly and most helpful. (Boston: Houghton Mifflin Co., 1909. 187 p. 40c.)

An indication of the new tasks being laid on the public schools in the large cities is found in the appearance of a little textbook entitled *English for foreigners* by Miss Sara R. O'Brien of Springfield, Mass. The book is cleverly made. (Boston: Houghton Mifflin Co., 1909. 155 p. 50c.)

In *Civics and health,* Mr. William H. Allen presents an impressive argument for development of the work in school hygiene and preventive medicine. His book should be widely read by teachers for whom it contains many practical suggestions. (Boston: Ginn & Co., 1909. 432 p. $1.25.)

The new conditions under which our national government is being carried on are suggestively indicated in a book entitled *The federal civil service as a career,* by E. L. Foltz. The operation of the merit system is described and the practical working of the civil service set out in some detail. (New York: G. P. Putnam's Sons, 1909. 325 p. $1.50.)

For many years Stopford Brooke's little *Introductory primer of English literature* was much used in America, and now a new book of the same type, entitled *A new primer of English literature,* has just appeared, written by Professors Tucker and Murdoch of the University of Melbourne. London: George Bell & Sons, 1909. 216 p. 2s. 6d.)

XI

NOTES AND NEWS

The physiological basis of success

At the Winnipeg meeting of the British Association one of the most interesting addresses was that by Professor E. H. Starling, of the University of London, who, as president of the year in this section on physiology, took for his topic the physiological basis of success. From the full report in the London *Times* we take the following paragraphs:

Professor Starling began by pointing out that the physiologist had one guiding principle which played but little part in the science of the chemist and physician, namely, adaptation. Every phase of activity in a living being was a sequence of some antecedent change in its environment, and was so adapted to this change as to tend to its neutralization and so to the survival of the organism. This was what was meant by adaptation, which therefore must be the deciding factor in the origin of species and in the succession of the different forms of life upon the earth. In every case, whatever part of the living world we took as an example, we found the same apparent perfection of adaptation. Whereas, however, in the lower forms the adaptation was within strictly defined limits, with rise in type the range of adaptation steadily increased. Especially was this marked if we took those groups which stood, so to speak, at the head of their class. It was therefore important to try and find out by a study of various forms the physiological mechanism of mechanisms which determined the increased range of adaptation. By thus studying the physiological factors, which might have made for success in the struggle for dominance among the various representatives of the living world, we might obtain an insight into the factors which would make for success in the further evolution our race was destined to undergo.

EDUCATION BY EXPERIENCE

The factors which determined success in the struggle for predominance were, in the first place, foresight and power to react to coming events, and, in the second place, control of the whole activities of the organism by that part of the central nervous system which presided over the reaction. That animal therefore profited most which could subordinate the impulses of the present to the exigencies of the future. An organism thus endowed was still, however, in the range of its reactions, a long way behind the type which had attained dominance today. With the formation of the vertebrate type, and probably even before, a new faculty made its appearance. Up to this point the reactions of an animal had been what was termed " fatal," not in the sense of bringing death to the animal, but as inexorably fixt by the structure of the nervous system inherited by the animal from its precursors. The next great step in the evolution of our race was the modification of the nervous system which should render possible the education of the individual. The mechanism for this educatability was supplied by the addition, to the controlling sensory ganglia of the head, of a mass of nervous matter which could act, so to speak, as an accessory circuit to the various reflex paths already existing in the original collection of nerve ganglia. This accessory circuit, or upper brain, came to act as an organ of memory. Without it a child might, like a moth, be attracted by a candle-flame and approach it with its hand. The injury ensuing on contact with the flame would inhibit the first movement and cause a drawing back of the hand. In the simple reflex mechanism there was no reason why the same series of events should not be repeated indefinitely, as in the case of the moth. The central nervous system, however, was so constituted that every passage of an impulse along any given channel made it easier for subsequent impulses to follow the same path. In the new nerve center, which presented a derived circuit for all impulses traversing the lower centers, the response to the attractive impulse of the flame was succeeded immediately by the strong inhibitory impulses set up by the pain in the burn. The effect of such a painful experience on the new upper brain

must far outweigh that of the previous impulse of attraction. The next time that a similar attractive impression was experienced the derived impulse traversing the upper brain aroused, not the previous primary reaction, but the secondary one, viz., that determined by the painful impressions attending contact with the flame. As a result, the whole of the lower tracts, along which the primary reaction would have traveled, were blocked, and the reaction—now an educated one—consisted in withdrawal from or avoidance of the formerly attractive object. The burnt child had learnt to dread the fire.

THE FACULTY OF SPEECH

If we considered for a moment the vastness and complexity of the stream of impressions which must be constantly pouring into the central nervous system from all the sense organs of the body, and the fact that, at any rate in the growing animal, every one of these impulses was, so to speak, stored in the upper brain, and affected the whole future behavior of the animal, even the millions of nerve cells and fibers to be found in the human nervous system would seem to be insufficient, to carry out the task thrown upon them. Further development of the adaptive powers of the animal would probably have been rendered impossible by the very exigencies of space and nutrition, had it not been for the development of the power of speech. Every word was a shorthand expression of the vast sum of experience, and by using words as counters it became possible to increase enormously the power of the nervous system to deal with its own experience. Education now involved the learning of these counters and of their significance in sense experience; and the reactions of the highest animal, man, were for the most part carried out in response to words and were governed by past education of the experience-content involved in each word. As soon as experience could be symbolized in words, it could be dissociated from the individual and became a part of the common heritage of the race, so that the whole past experience of the race could be utilized in the education—i.e., the laying down of nerve tracts—in the individual himself.

On the other hand, the community received the advantage of the foresight possest by any individual who happened to be endowed with a central nervous system which transcended that of his fellows in its powers of dealing with sense impressions or other symbols. The foresight thus acquired by the whole community must be of advantage to it and serve for its preservation. It was therefore natural that in the processes of development and division of labor, which occurred among the members of the community just as among the cell units composing an animal, a class of individuals should have been developed, who were separated from the ordinary avocations, and were, or should be, maintained by the community, in order that they might apply their whole energies to the study of sequences of sense impressions. These were set into words which, as summary statements of sequence, were known to us as the Laws of Nature. These natural laws became the property of the whole community, became embodied by education into the nervous system of its individuals, and served therefore as the experience which would determine the future behavior of its constituent units. This study of the sequence of phenomena was the office of science. Thru science the whole race thus became endowed with a foresight which might extend far beyond contemporary events and might include in its horizon not only the individual life, but that of the race itself as of races to come.

RISE IN TYPE DEPENDENT ON BRAIN

In the evolution of the higher from the lower type, the physiological mechanisms, which had proved the decisive factors, could be summed up under the headings of integration, foresight, and control. In the struggle for existence the rise in type had depended on the central nervous system and its servants. Rise in type implied increased range of adaptation, and this increased range, from the very beginning of a nervous system, was bound up with the powers of this system. Whatever opinion we might finally arrive at with regard to the types of animals which we might claim as our ancestors on the line

of descent, there could be no doubt that Gaskell was right in the fundamental idea which had guided his investigations into the origin of the vertebrates. As he said, "the law for the whole animal kingdom is the same as for the individual. Success in this world depends upon brains." The work by this observer, which had lately appeared, set forth in greater detail the grounds on which this assertion was based, and furnished one of the most noteworthy contributions to the principles of evolution which had been published during recent years. We must not, however, give too restrictive or common a meaning to the expression "brains" used by Gaskell. The word implied the whole reactive system of the animal. In the case of man, as of some other animals, his behavior depended not merely on his intellectual qualities or powers, to which the term "brain" was often in popular language confined, but on his position as a member of a group or society. His automatic activities in response to his ordinary environment, all those social acts which we ascribed in ourselves to our emotions or conscience, were determined by the existence of tracts in the higher parts of his brain, access to which had been opened by the ruthless method of natural selection and which had been deepened and broadened under the influence of the pleasurable and painful impressions which were included in the process of education. All the higher development of man was bound up with his existence as a member of a community, and in trying to find out the factors which would determine the survival of any type of man, we must give our attention, not to the man, but to the tribe or community of which he was a member, and must try to find out what kind of behavior of the tribe would lead to its predominance in the struggle for existence.

POLITICAL EVOLUTION

The comparison of the body politic with the human body was as old as political economy itself, and there was indeed no reason for assuming that the principles which determined the success of the animals formed by the aggregation of unicellular organisms should not apply to the greater aggregations or

communities of the multicellular organisms themselves. It must be remembered, however, that the principles to which he had drawn attention were not those that determined survival but those which determined rise of type, what he had called success. Mere association into a community was not sufficient to ensure success; there must also be differentiation of function among the parts, and an entire subordination of the activity of each part to the welfare of the whole. It was this lesson which we English-speaking race had at the present time most need to learn. In the behavior of man almost every act was represented in consciousness of some emotion, experience, or desire. The state of subordination of the activities of all units to the common weal of the community had its counterpart in consciousness as the "spirit of service." The enormous value of such a condition of solidarity among the individuals constituting a nation, inspired, as we should say, by the spirit of service, had been shown lately by Japan. In our own case the subordination of individual to State interests, such as was necessary for the aggregation of smaller primitive into larger and more complex communities, had always presented considerable difficulty and been accomplished only after severe struggle. Thus the work begun by Alexander Hamilton and Washington, the creation of the United States, was still, even after the unifying process of a civil war, incomplete and marred by contending State and individual interests. The same sort of difficulties were being experienced in the integration of the units, nominally under British control, into one great nation, in which all parts should work for the good of the whole and for mutual protection in the struggle for survival. Just as pain was the great educator of the individual and was responsible for the laying down of the nervous paths, which would determine his whole future conduct and the control of his lower by his higher centers, so hardship had acted as the integrator of nations. It was possible that some such factor with its attendant risks of extermination might still be necessary before we attained the unification of the British Empire, which would seem to be a necessary condition for its future success. But if only our countrymen could read the lesson of evolution

and were endowed with sufficient foresight, there was no reason why they should not, by associating themselves into a great community, avoid the lesson of the rod. Such a community, if imbued by a spirt of service and guided by exact knowledge, might be successful above all others. In this community not only must there be subordination of individual to communal interests, but the behavior of the community as a whole must be determined by anticipation of events—*i.e.*, by the systematized knowledge which was called science. The universities of a nation must be like the eyes of an animal, and the messages that these universities had to deliver must serve for the guidance and direction of the whole community. At the present time it seemed to him that, altho it was the fashion to acquiese in evolution because it was accepted by biologists, we did not sufficiently realize the importance of this principle in our daily life, or its value as a guide to conduct and policy. Yet, according to their agreement with biological laws, the political theories of today must stand or fall. It was all-important that the people themselves should realize the meaning of the message which Darwin delivered fifty years ago. On the choice of the people, not of its politicians, on its power to foresee and to realize the laws which determined success in the struggle for existence, depended the future of our race. It was the people that must elect men as rulers in virtue of their wisdom rather than of their promises. It was the people that must insist on the provision of the organs of foresight, the workshops of exact knowledge. It was the individual who must be prepared to give up his own freedom and ease for the welfare of the community. Whether our type was the one that would give birth to the super-man it was impossible to foresee. There were, however, two alternatives before us. As incoherent units we might acquiesce in an existence subordinate to or parasitic on any type which might happen to achieve success, or as members of a great organized community we might make a bid for determining the future of the world and for securing the dominance of our race, our thoughts, and ideals.

Searchings of the Spirit at Harvard.

Writing in the *Harvard Graduates' Magazine* for September, Professor W. B. Munro tells some interesting things about the movement of academic opinion at Harvard. It appears that the existing system of requirements for admission to Harvard College, which has long been most seriously criticised elsewhere, is now being subjected to a scrutiny not wholly friendly or sympathetic within the college itself. Professor Munro naïvely asks whether standards of admission must not be set "with a constant eye open upon what the schools are doing and must not the real gauge of admission requirements come to be what the schools can do rather than what the college wants them to do?" This is real light beginning to shine in a hitherto insufficiently illuminated spot. Perhaps one may now have hopes that the colleges, Harvard leading the way, will grapple with the distressing situation as to Latin, which Mr. De Forest pointed out so clearly in the September issue of this REVIEW, and save that vitally important subject from scholastic destruction before it is too late.

Professor Munro also raises the question whether the policy of admitting to the Harvard Medical School only the graduates of some recognized college or university should not now be modified. He is here upon sound ground. To exclude altogether from a vocational school perfectly competent students simply because they have not previously taken a baccalaureate degree, is indefensible trifling with serious things. It may be pedagogics, but it is not education. The only disquieting thing about these stirrings at Harvard is that they are attributed by Professor Munro to uneasiness arising from a falling-off in the number of students.

The N. E. A. in 1910

The heavy vote of the directors at Denver in favor of San Francisco as the place of meeting for 1910 naturally gives that city the first place in the consideration of the executive committee, which must soon settle the question. Inasmuch as the vote was merely advisory, however, the matter is an open one and the highest interests of the Association itself must determine the choice.

Dr. Charles W. Eliot, who was president in 1903, has offered the suggestion that the going from one part of the country to another should be abandoned and that the meetings should be held in succession, say in New York, Washington, Chicago and Boston, where there is much to attract a large attendance and where there can be no question of adequate accommodations.

For 1910 Boston and Atlantic City are both earnestly in the field in addition to San Francisco, and Milwaukee, where the meeting of 1897 was held, has also been mentioned. Militating against the present availability of San Francisco are the very recent meeting in Los Angeles (1907), the far western point at which the meeting of 1909 was held, and the heavy travel of teachers to the coast during the past summer to visit the exposition at Seattle. On the other hand, San Francisco's hospitality is boundless. She is intensely in earnest in her wish again to entertain the Association, and a large local membership would be assured. The railroad conditions are likely to be the same wherever the meeting is held.